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INTERNATIONAL DEVELOPMENT ASSOCIATION

THE CURRENT ECONOMIC SITUATION AND PROSPECTS OF MAURITANIA

(in four volumes)

VOLUME III

FISHERIES

August 5, 1971

Western Africa Department

CURRENCY EQUIVALENTS

Currency Unit: CFA Franc (CFAF)

Before August 11, 1969:

US $ 1.00	=	CFAF 246.85
CFAF 1,000	=	US $ 4.05

After August 11, 1969:

US $ 1.00	=	CFAF 277.71
CFAF 1,000	=	US $ 3.60

WEIGHTS AND MEASURES

1 Metric Ton (t)	=	2,205 lbs
1 Kilogram (kg)	=	2.2 lbs
1 Kilometer (km)	=	0.62 mile
1 Meter (m)	=	3.28 feet

COMPOSITION OF MISSION

This report is based on the findings of a mission which visited Mauritania in March-April 1970. The mission comprised the following members:

Heinz B. Bachmann	Chief of Mission
Carlos Merayo	General Economist
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LIST OF ABBREVIATIONS

CCCE:	Caisse Centrale de Coopération Economique, a French government agency that makes loans to developing countries
EGA:	Entreprise Générale de l'Atlantique, a private firm producing salt dried fish at Nouadhibou
FAC:	Fonds d'Aide et de Coopération, a French government agency concerned with financing aid to developing countries
CFAF:	Franc of the African Financial Community, the currency used in Mauritania
FED:	Fonds Européen de Développement, an agency of the European Economic Communities that provides funds for the Associated States
IMAPEC:	Industrie Mauritanienne de Pêche, a semi-public Spanish corporation established under Mauritanian law that produces processed sea foods at Nouadhibou
SAMMA:	Société d'Acconage et de Manutention en Mauritanie Anonyme, a subsidiary of the MIFERMA mining group, that has a monopoly on handling cargo in the commercial port at Nouadhibou
SIGP:	Société Industrielle de Grande Pêche, a private company producing salt dried fish at Nouadhibou
SOMAUPECO:	Société Mauritanienne de Pêche et de Conserverie, has recently become a subsidiary of EGA, and is expected to turn out frozen fish products
SOMAP:	Société Mauritanienne d'Armement à la Pêche, a Mauritanian mixed corporation, now in liquidation
SOMIP:	Société Mauritanienne des Usines de la Pêche, a Mauritanian mixed corporation owning a fishmeal plant at Nouadhibou

MAURITANIA: FISHERIES

PART ONE: SEA FISHING

I. GENERAL DESCRIPTION -- POTENTIAL

1. There was practically no sea fishing in Mauritania until 1965; what there was, was carried on only by a few dozen Imraguen tribesmen 1/ living in and around the village of Memghar near Cape Timiris. Except in the region near the Senegal river, where supplies of fish from inland waters were sometimes available, the people of Mauritania, who are chiefly nomad herdsmen, were not interested until recently either in fishing or in eating fish. The whole coastal area of the country is desertlike and only populated by a few hundred Imraguen.

2. This situation is in curious contrast to the extraordinary wealth of both benthic 2/ and pelagic 3/ species of fish in the ocean off the Mauritanian coast, due to very favorable hydrological conditions. The rate of productivity of marine life is very high. The biomass of the bottom species is comparable to that of the most productive sea areas, and that of the surface species is among the richest in the world. This is due to the seasonal (November to June) phenomenon of massive "upwelling" of water from the sea bottom which is rich in nutritive mineral salts.

3. Moreover, a vast continental shelf runs from Cape Blanc to Cape Timiris, extending between 20 and 90 miles offshore and for about 20 to 30 miles from Cape Timiris to the mouth of the Senegal River. According to the seasons, there is a constant migratory movement of marine species, both bottom and surface fish, along the whole Mauritanian coast, the numbers involved being all the greater because the supply of food is constantly being renewed.

4. This explains why from the late 19th century on, trawlers of all nationalities have fished these waters, and why the numbers have steadily increased since the end of World War II. In 1953, about 100,000 tons and in 1958, 110,000 tons of bottom species were caught, 70 percent by bottom trawling. Since that date, the area has been worked by boats using surface and medium-depth trawling equipment, and by refrigerator and factory ships, so as to make better use of the bottom varieties which cannot be marketed fresh and which represent between 25 percent and 35 percent of the total catch, depending on the season.

1/ A sedentary tribe settled on the coast.

2/ Fish living on the sea bottom.

3/ Fish living near the surface.

5. Fishing in the central zone of the eastern Atlantic (covering Sectors XIa, XIb and XIIa of the FAO statistical conventions) has thus been developed through the use of large, well-equipped vessels, belonging to non-African commercial companies, with Mauritania, the second largest country after Spain bordering these waters, having no share in it.

6. The number of vessels operating in this zone in 1969 was about 650, a considerable increase since 1961, when the count was only 175. Some of the vessels are not operated on a year-round basis, so that a rough estimate of the total catch of the fleet would be about 750,000 tons per year (about 50,000 tons of deep sea pelagic species, 450,000 tons of coastal pelagic species, 100,000 tons approximately of octopus and squid and 150,000 tons of bottom species).

7. For the bottom species, octopus and squid, the biomass probably is about 800,000 tons, of which about 400,000 to 450,000 tons could in theory be caught each year without depleting the resources; but since about 30 percent of these species have very little commercial value and are not worth marketing, the potential catch can be estimated at between 300,000 and 350,000 tons annually. It should be noted, however, that because of the quite extraordinary yearly renewal of the environment, it would be easy to ensure the replenishment of stocks of bottom fish in a matter of two or three years, if necessary, by taking suitable measures.

8. For the pelagic species, the biomass probably represents about 2,000,000 tons, of which 1,000,000 tons could be taken each year. It is obvious, however, that a rapid increase in the rate of catch would necessarily be at the expense of other consumers (i.e. carnivorous fish and mammals). This would have to be borne in mind when making estimates of future catches.

9. The Mauritanian fishing industry, whose present share of the total catch in these waters is only 4 percent, could benefit from action along three lines, as follows:

a. Establishing a national fishing fleet. However, the difficulty of producing sufficient trained manpower means that this will not be a practical possibility for a good many years and can only be considered as a long-term solution. Earlier attempts (SOMAP) have resulted in failure because this problem was not taken into account.

b. Introducing measures restricting fishing in all Mauritanian territorial waters (extending for 12 miles beyond a base line drawn from Cape Blanc to Cape Timiris and for 12 miles from the coast line south of Cape Timiris). Foreign vessels fishing in those waters would be obliged to land their catch at Nouadhibou.

Mauritania should certainly be encouraged to persevere in applying the fishing control measures which have been put in force (see Annex I), but as the resources of her territorial waters represent only about one third of the total resources of the area, this would still not give her a full share of the wealth of the ocean off her coasts.

c. Making Nouadhibou a center of attraction for fishing vessels of all nationalities by creating a proper port infrastructure, and providing supply and maintenance facilities and other services at prices which could compete with the rival ports of Las Palmas and Dakar. A program of this sort would enable Nouadhibou to take full advantage of its location in the center of the richest fishing region of the northwest African coast.

II. RECENT DEVELOPMENTS AND PRESENT SITUATION

A. Orangization and Administration of the Fishing Industry

10. The sea fishing industry is regulated by a law of 20 January 1962 dealing with Shipping and Fisheries. This law was brought up to date in 1968 by a decree setting up a Department of Shipping and Fisheries which was made into a Ministry in 1970 by a further decree. To carry out the provisions of the law, the Ministry has four Departments, as follows:

at Nouakchott: -

- the Department of Shipping, covering fishing and trading vessels;
- the Department of Fisheries;

at Nouadhibou: -

- the Department of Scientific Research, which runs a fisheries laboratory;
- the Shipping Registration Department, responsible for fishermen, for maritime navigation and fishing regulations. However, the Mauritanian navy and not the Department is responsible for enforcing these regulations.

Finally, a Fisheries Advisory Council whose task is to advise the Minister on all fishery development projects was set up by an order of January 1969. The Council is composed of leading personalities from both public and private bodies (industry and banking) concerned with maritime affairs.

B. Traditional Forms of Fishing

11. There is only a limited amount of sea fishing by traditional methods in Mauritania. This is almost entirely carried on by the Imraguen tribesmen settled mainly along the coast south of Cape Timiris (180 fishermen). In the last few years a growing number of Imraguen and other Mauritanian fishermen (about 120 altogether) have established themselves at Nouadhibou, attracted by the Government's policy of aid to fishing. They own about 43 vessels (20 sailing boats, 16 motor boats and 7 decked motor vessels between 10 and 50 tons) representing an investment of CFAF 20 million.

12. Since 1963 increasing numbers of Senegalese fishermen have been coming into Mauritanian waters with their outboard motor canoes (7 to 9 meters). They sell their catch either fresh for local consumption or to the drying plants at Nouadhibou. At present there are about 30 Senegalese canoes based at Nouadhibou and 40 at Nouakchott, with a total of 250 fishermen. (Investment 11.2M CFAF.)

13. Among the Imraguen, the main catch by the traditional method of fishing with nets from the shore is yellow mullet, from October to December and in March and April. With this method, watchmen are posted to give warning when shoals of fish come close inshore, and the one-piece nets used are cast round the fish to form a seine which is then pulled up on to the beach. Fishing for meagre from launches, between January and July, is carried on either with hand lines or with barrier nets. When a shoal of fish is reported, two nets are joined together and launches bring their ends together to surround it. Lobster is caught with both pots and nets. The trawlers use either trawl or barrier nets. The sardiners use only barrier nets. At Nouakchott, fishing is done with hand lines, with fixed gill nets and cast nets. Lobsters are taken with drag nets.

14. In 1969, traditional methods of sea fishing produced a total of 2,750 tons with a value of CFAF 120.9 million, as follows:

- Imraguen outside Nouadhibou: 1,800 tons (300 tons for their own consumption), -- value CFAF 35.5 million;

- Mauritanian and Senegalese fishermen at Nouadhibou: 650 tons (100 tons for their own consumption and 50 tons of lobster) -- value CFAF 58 million;

- Senegalese fishermen at Nouakchott: 300 tons including 10 tons of lobster -- value CFAF 27.4 millions.

It has been estimated that in 1964 the total catch was about 850 tons, but this is probably too low. However, there has been a steady increase in production in the traditional sector as a result of a growing demand from the towns, easier access to the scattered Imraguen camps, and larger catches of lobster.

C. Modern Industrialized Fisheries

15. Fishing in the modern sector is concentrated entirely to Nouadhibou (formerly Port Etienne), which is a natural harbor well situated inside the Baie du Levrier in the center of the richest fishing zone. It is the only deep sea port in Mauritania, with the exception of the mining port of Cansado a few miles from Nouadhibou. Since the local demand for fresh fish is very limited, most of the fish landed at Nouadhibou is sold to the various processing plants and is dried, frozen or turned into fishmeal. The development of the fisheries is thus closely bound up with that of the fish processing industry.

1. Mauritanian fisheries

16. As was mentioned in Chapter I, the first attempt to create a national fishing fleet failed; SOMAP (Mauritanian Fishing Corporation), a mixed corporation set up in 1965, had to cease its activities officially on January 31, 1969 and sell off its vessels. Its present debt amounts to CFAF 1,904.5 million, on which a moratorium has been declared by the Government,

which had guaranteed the loans made to the corporation. 1/ The disastrous failure of this first attempt to establish a fishing fleet based at Nouadhibou created serious problems for the SURVIF freezing plant and the SOMIP fishmeal factory, which were both very closely associated with SOMAP and were supposed to be supplied by the corporation's vessels.

17. This unfortunate episode might cast serious doubts on the future of a fishing industry based at Noaudhibou, were it not that the causes of SOMAP's failure are well understood. The most important of these were:

A bad equipment buying policy which led to abnormally high costs and the purchase of equipment which often did not meet the requirements;

Bad management in all sectors, including turnaround of vessels, recruitment of foreign labor, choice of fishing areas, wastage of catches and inadequate sales organization;

Lack of trained local manpower, although only local crews could be employed;

An uncooperative attitude on the part of the Mauritanian Customs Service, which showed no understanding of the needs and requirements of a fishing industry;

Insufficient capital;

Inadequate port facilities at Nouadhibou, where the quay was unfinished, and where there was a lack of careenage and maintenance facilities, and poor water and fuel supplies on the quayside.

18. While the bad buying policy, bad management and shortage of capital were factors which might easily have been avoided and should not therefore be considered as necessarily militating against renewing attempts to establish a fishing fleet, the complete lack of trained local manpower is a more serious problem to which there is no short-term solution. The problems of poor Customs cooperation and inadequate port installations must be overcome, not only as a prerequisite for establishing a modern national fishing fleet, but even more urgently because a solution is essential if better use is to be made of the processing plants already in existence at Nouadhibou.

2. Foreign fishing fleets supplying the processing plants at Nouadhibou

19. An essential factor in the modern fisheries industry in Mauritania is the presence of fishing fleets from metropolitan Spain and the Canary Islands, which are almost the sole suppliers of the Nouadhibou plants proces-

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1/ A more detailed account of the position of the SOMAP/SOMIP group will be found in Annex 3.

sing frozen and salt dried fish for export. Their presence is a traditional arrangement, due to the proximity of the Canary Islands and to a Franco-Spanish agreement of June 27, 1900, which gave the Spaniards equal fishing rights with the French in the Baie du Levrier, on condition, however, that their drying installations on land should be dismantled at the close of each season, i.e., in June each year. Indeed, until 1960 Spanish fishing operations in Mauritanian waters were purely seasonal -- fishing for meagre 1/ from November to June -- and, in order to avoid having to dismantle their processing installations, the Spaniards used pontoons (floating platforms) and schooners anchored in the Baie du Levrier, which were taken back to the Canaries at the end of each season.

20. On February 14, 1964 a new agreement was made between Spain and Mauritania, by which, in exchange for the Mauritanian Government's undertaking to set up permanent fishery installations on shore (a project which is discussed more fully later in this report), the Spanish Government agreed: (a) to register 20 fishing vessels in Mauritania, and to raise the number later to 50; (b) to authorize the Spanish fishing companies to sell their catch in Mauritanian ports on payment by them of an annual tax of US$10 per gross ton on their vessels fishing in Mauritanian waters; and (c) to allow Mauritanian nationals to sign on as members of the crews of these vessels with the same rights and conditions as Spanish crewmen.

In return, Spanish fishermen were authorized to fish in Mauritanian waters on the same conditions as Mauritanian fishermen.

21. In 1965, the Mauritanian Government announced its intention of banning the use of pontoons in its territorial waters, and in fact by 1970 there was only one remaining permanent pontoon (of 700 tons) belonging to a Canary Islands company (Lloret Linares).

22. The highest number of permits, 216 (2,608 tons), was issued in 1964. Thereafter it levelled off at about 170 (in 1969, 171 for 3,101 tons). For that year, they brought in some US$31,000, i.e. CFAF 8.5 million, for the Mauritanian Treasury. Although the permits are paid for on an annual basis, their number does not correspond exactly with the number of vessels permanently based at Nouadhibou, since a good many boats only come for the meagre fishing season.

1/ Sciena aquila

Number of Spanish vessels fishing in Mauritanian territorial Waters

	Permanent fleet	Seasonal and Permanent fleet
Launches, cutters and motor boats (8 to 12 meters, 5 to 35 tons, crews of 4 or 5)	13	80
Sardiners (12 to 20 meters, 15 to 70 tons, crews of 15)		57
Trawlers (17 to 30 meters, 45 to 150 tons, crews of 10 to 15)	32	34
Value (CFAF thousands)	450,000	650,000
Total manpower (numbers of Mauritanians shown in parentheses)	600 (125)	2,300 (205)

23. Both permanent and seasonal fleets are made up for the most part of vessels whose operators have, each year since 1965, contracted to make deliveries directly to the drying and freezing plants at Nouadhibou; but some of these vessels, even those operating on a permanent basis, take advantage of opportunities to make illegal transhipments at sea or to land their catch at ports other than Nouadhibou, even when Nouadhibou's requirements have not been fully met.

Changes in production by Spanish vessels

Tons

	1964		1969	
	green fish /1	fresh weight equivalent /2	green fish /1	fresh weight equivalent /2
For drying				
Delivered direct to Canary Islands	16,000	25,000	5,000	8,000
Delivered to plant at Nouadhibou	7,239	12,000	10,700	17,150
Delivered to the Lloret Linares pontoon at Nouadhibou			1,500	2,350
Total dried fish	23,239	37,000	17,200	27,500
For freezing				
Delivered to plant at Nouadhibou			-	6,800
Lobster				
Delivered to Nouadhibou			-	20

/1 Headless, cleaned, filleted and salted
/2 1 Kg. of fresh fish = 0.62 kg. of salt fish.

24. There has been some falling off in supplies to the drying plants, due both to the difficulty of finding Spanish crews, who are drawn off by better paid jobs in the Canary Islands, and to the volume of fish taken by large foreign trawlers operating outside territorial waters during the seasonal migration beyond the continental shelf. The cutters and launches use either barrier nets or floating gill nets or, less frequently, beach seine nets. The sardiners nearly all use the barrier nets known as "trainant".

25. Since 1966 Spanish vessels have also been supplying the freezing plants at Nouadhibou. The catch is made up chiefly of dolphin (Sparides Pristo-pomatides), halibut (Psettodides), flat fish (Soleides, Cynoglossides), shark (Mustelides), squid and octopus. In 1969 the catch amounted to about 6,800 tons, with an overall value of CFAF 272 million; the figures are expected to be higher for 1970 since in the first three months of this year 3,900 tons were delivered to the freezing plant at Nouadhibou. Some 20 tons of lobster (value CFAF 20 million) should be added to the figures for 1969.

26. In contrast to the comparatively large numbers of Spaniards, there have never been many French fishermen at Nouadhibou because the higher French wage rates put them at a disadvantage in competing with Spanish fishing companies. At present, there are five French trawlers between 18 and 26 meters (30 to 100 tons) based at Nouadhibou (value 60 MFCFA) as against seven in 1969. They have a contract to deliver their catch to the SURVIF (Vandamne) company. In 1969, they produced 1,500 tons of fish and 10 tons of lobster, valued at CFAF 70 million. The crews of these vessels number 45 in all.

27. Since the beginning of 1970, 10 vessels (about 22 meters) belonging to a Dutch company and equipped with seine nets have been operating in Mauritanian territorial waters, on the same terms as the Spanish fleet, implying the payment of permit fees amounting to CFAF 3.3 million per year. They supply the SOMIP fishmeal factory with coastal pelagic species of fish under a contract with COMAPIC, the company managing the factory.

3. Other foreign fleets fishing in territorial waters

28. Apart from arranging for supplies to the processing plants at Nouadhibou, the Mauritanian Government has been trying to exploit the fish resources near its shores. To this end, a number of agreements have been made, in addition to that with Spain (see Annex 2), authorizing foreign fleets to fish in that area of Mauritanian territorial waters lying between the base line and a line 12 miles further out to the north of Cape Timiris and between 3 and 12 miles from the shore to the South of the Cape. These agreements are of a temporary nature, lasting between one and five years, and are primarily intended to provide the Mauritanian Treasury with fresh sources of revenue to cover the SOMAP debts underwritten by the Government. They are not intended to provide additional supplies of fish for the Mauritanian processing plants on shore.

29. The agreement between Greece and Mauritania (June 1969) covers an assumed catch of 11,000 tons annually and 25 trawlers; that with Italy (June 1969) a maximum of 18,000 gross tons in 1969 and 14,000 gross tons (21 vessels) in 1970. A similar agreement with the private firm Pesquerias de Panama, S.A. (Panama Fisheries, Ltd.) specifies an assumed annual catch of 16,000 tons and 35 vessels; and one with Japan (May 1970) 19,640 gross tons. All these agreements taken together authorize about 115 vessels to operate in Mauritanian waters from 1970 onwards and represent a total annual catch of 73,000 tons of fish not landed at Nouadhibou.

All this is in addition to the 199 Spanish boats (171 belonging to various owners and 28 to IMAPEC), the 10 Dutch boats and a few French and Mauritanian vessels which supply the onshore installations. Together, they represent revenue from fishing permits of about CFAF 450 million per year for Mauritania.

30. In all, it is expected that in 1970 nearly 340 vessels will be fishing in Mauritanian territorial waters. It is clear that Nouadhibou could not accommodate all these foreign vessels and their catch. The fish quays are too small; protection from the ocean swell is inadequate; maintenance facilities and spare parts supplies are lacking; and the slips cannot take

boats of the size involved. For these reasons, most of the vessels, with the exception of the Spanish, French and Dutch, land their catch in their own countries at the end of each season. As long as the lack of proper facilities in Mauritanian ports is not remedied, the Mauritanian authorities can only rent out their territorial waters as a way of obtaining the greatest possible return from the fish available there in order to pay off the debts incurred by SOMAP and SOMIP.

4. Changes in production: quantity and value [1/]

31. Deliveries of green fish to the drying plants have increased from 5,122 tons in 1960 to 7,239 tons in 1964 and 10,956 tons in 1969, representing a rate of increase of 8.7 percent to 9 percent annually. As the average price per kg. has increased from CFAF 24.89 in 1960 to CFAF 38.00 in 1969, the landed value has increased more rapidly (14 percent annually). Put another way, while the volume has doubled in nine years, the value has more than tripled.

32. Prices, which are dependent on international market conditions, vary with the volume of orders received by the Mauritanian and Canary Islands drying plants, and with the supply of fish. Since imports by Ghana and Congo-Brazzaville have increased, the processing factories will certainly have had to raise their buying price in 1970 in order to obtain increased supplies of fish. Indeed, after a drop in 1966, prices have risen steadily since 1967.

33. With the entry into service of the SURVIF cold storage plant in 1966 and the FED cold storage facility in the port in September 1968, deliveries of fresh fish and shellfish for freezing quadrupled from 2,100 tons to 8,400 tons between 1964 and 1969, despite the withdrawal of SOMAUPECO on January 1, 1967. As has already been noted, the largest share of the catch is provided by the Spanish and French fleets (6,800 tons and 1,500 tons respectively), the traditional sector accounting for no more than 100 tons.

34. Lobster fishing is carried on mainly by a French fleet which delivers its catch directly to France without calling at Nouadhibou; there are, however, a few Mauritanian boats which supply Nouadhibou and Nouakchott and contribute to a small but highly profitable export trade.

Year	Mauritanian vessels	Green lobster (tons)	Total value to producers CFAF millions	Export price CFAF per kg.
1964	3	25.2	15.2	794,-
1968	14	69	41.4	825,-
1969	16	90	70	1,160,-

1/ For details, see Annex 6.

The reduction in the total catch is due chiefly to overfishing for green and red lobster in all the fishing grounds, which has led Spain since 1965 and Mauritania since 1967 (a) to declare a closed season first from September 1 and then from December 15 until March 1 or March 31, according to the year, and (b) to restrict the number of vessels permitted to fish for green lobster off the Rio de Oro and Mauritanian coasts. In addition, (c) the Spanish Government in 1966 designated a zone which is permanently closed to all fishermen other than Mauritanians and Spaniards from the Mauritanian frontier to Cape Barbas. These measures have already begun to bear fruit, since the number of lobsters taken by Mauritanian vessels is again on the increase.

35. Altogether, for investments representing CFAF 541.2 million (excluding SOMAP which alone accounted for CFAF 2,480 million, most of it since lost), the modern large-scale fishing sector was responsible for landing 27,830 tons (value CFAF 825 million) at Nouadhibou in 1969, compared to 11,840 tons (value CFAF 268.7 million) in 1964, representing an average rate of increase of 18 percent per year. This is considerable progress. The Mauritanian Government, after giving up its intention of first creating a national fishing fleet, has discovered a realistic method of developing its fisheries. Now that a considerable processing capacity has been built up on shore, it remains for the necessary improvements to be made in the port facilities to attract the fishing vessels needed to supply the plants and to ensure that they can be maintained and operated at costs competitive with those at other African ports.

36. To this end, the policy of drawing revenue from license fees should be considered only temporary in order to avoid depleting the stock of fish irremediably and to prevent overfishing. Furthermore, if this policy were kept in force for long, it could not fail to lead to competition with the Mauritanian product abroad, and hence to a substantial decline in prices. For it is precisely the importing countries which benefit from the permit arrangements that are trying to cut down their purchases from Mauritania.

D. Processing of Fish Products

37. The main processing operations carried on at Nouadhibou are freezing, salting and drying, and the production of fishmeal and bottargo. Tuna canning is to start in 1971. These operations come under the Investment Code, which grants priority treatment to the fish processing industries, and to operators engaging in large-scale fishing, provided they process the fish themselves on Mauritanian soil. When investment in these activities amounts to CFAF 1 billion or more, the firms concerned qualify for relief under the long-term investment tax regulations, which provide for total or partial exemption from import duties, together with temporary exemption from taxation of trading or industrial profits, and a reduction of sales taxes.

1. Freezing

38. Eight firms were established under the First Plan (1963-1966) for the purpose of freezing fish and selling it in frozen form. Only three of these are in operation in 1970; the others have either been closed down or are inactive.

Production and prices of frozen fish

	1964	1965	1966	1967	1968	1969
Production tons						
SOMAUPECO and others	2,100	2,400	2,000	-	-	-
SURVIF	-	-	1,330	5,500	5,260	3,000 /1
SOFRIMA (FED cold storage)	-	-	-	-	-	5,400
Total	2,100	2,400	3,330	5,500	5,260	8,400
Average price						
CFAF per kg., f.o.b.	71.50	72.-	72.50	72.-	74.40	72.10

/1 Decline following collapse of SOMAP/SOMIP group and change of ownership.

39. As export prices depend very largely on the policy of the Mauritanian Government in granting fishing permits, it is clear that a correct policy is capital for the success of the fisheries in Mauritania. For instance, the fall in price in 1969 was a direct result of the grant of fishing permits to Italian operators, and of the consequent fall in demand by Italian importers, who thus found their supply problems eased. Conversely, the increase in price at the beginning of 1970 (100 CFAF/kg) was certainly due to the restrictions on fishing by Japanese operators who are very large purchasers of octopus and squid, the high prices for which influence considerably the average export price for Mauritanian fish products.

40. SURVIF, a firm set up as part of the SOMAP/SOMIP group, runs a freezing plant completed in October 1965. Since its inception it has never worked at more than 30 percent of its total capacity of 15,000 tons per year, and in the first three months of 1970 it was only working at a level equivalent to 1,500 tons per year. Since the disbandment of the SOMAP fleet, its source of supply has been some 30 French and Spanish vessels, from whose operators it buys fish under contract and markets it in frozen and packaged form.

The plant is said to have cost between CFAF 650 million and CFAF 857 million, depending on the informant. The present value of the asset is in the neighborhood of CFAF 350 million. Turnover was CFAF 191 million in 1966, CFAF 630 million in 1968, and CFAF 289 million in 1969.

41. In 1969 a new operating company was established to run the plant following the collapse of the SOMAP/SOMIP group. The French private firm of Vandamme became the majority shareholder and Mr. J. Vandamme became the managing director. The firm has obtained a moratorium from the local banks enabling it to pay off its debts of some CFAF 400 million over a period of seven years, and this should enable it to operate quite successfully. The firm provides employment for 150 workers, of whom 75 are permanent.

42. In September 1968 SOFRIMA took over the management of the freezing plant that had been built in the port area by the EDF at a cost of some CFAF 800 million. Twenty five percent of SOFRIMA's capital of CFAF 80 million was to be subscribed by EGA, 15 percent by the Mauritanian Government, 33 percent by private Mauritanian interests, and 27 percent by foreign interests. However, by May 1970 only one quarter of the capital had been called up, and only CFAF 6.7 million had been paid in.

43. SOFRIMA obtained a 25-year concession to run the plant, for which the funds were provided by the EDF on condition that the operator should absorb the cost of the non-fixed equipment and provide all the operating capital. A survey undertaken by the firm that designed the plant indicates that amortization payments should amount to CFAF 25 million for 15 years, which would require operating capital of about CFAF 39 million. However, present payments have been calculated on the basis of CFAF 4 million per year plus 10 percent of profits (CFAF 5.4 million in 1969), but nothing has been paid into the operating capital fund. In 1969 production is said to have amounted to 5,400 tons and turnover to CFAF 350 million. As SOFRIMA does not work on commission, but buys fish from a fleet of 33 vessels, mainly Spanish, under contract, the financial situation is unsatisfactory. The firm is only working at 30 percent of capacity; it employs 20 foreigners and 160 Mauritanians.

44. SOMAUPECO ceased operations in 1967 after being taken over by the Customs Service for debt, but the plant is still in working order. During 1968 and 1969 EGA paid off the creditors of SOMAUPECO to the extent of CFAF 105 million, and reconditioned the plant, which is to be brought back into operation during 1970. Total investment in the plant may be put at CFAF 130 million. If the plant started working again, it would provide employment for 100 Mauritanian workers and 15 foreign supervisory staff.

45. IMAPEC is currently by far the largest fish processor in Mauritania. It was established in 1967 under Mauritanian law by the Spanish firm SIMEX, a subsidiary of the National Industrial Institute, a Spanish Government agency, under the agreements of February 4, 1964 between Spain and Mauritania (See par. 20).

Total investment in the project is said to amount to CFAF 2,000 million, excluding the cost of an artificial drying tunnel. As the firm benefits from the legislation on priority industries by decree of July 22, 1966, the whole plant was imported duty-free.

Production started in the spring of 1970, and the aim is to produce 15,000 tons of frozen fish and fish dishes, 6,000 tons of dried fish, 5,000 tons of fishmeal, and 1,250 tons of fish oil per year. In addition, in 1971 the firm is to start canning 3,500 tons of tuna per year. The supplies of fresh fish required to carry out this program amount to the minimum of some 60,000 - 65,000 tons per year, fresh weight equivalent. When the plant is in full operation it will employ 50 foreign technicians and 1,100 Mauritanian workers and technicians. In the initial phase employment will be provided for some 450 Mauritanians. IMAPEC's other operations will be discussed in the appropriate sections of this report.

46. Capacity of Freezing Plants at Nouadhibou, 1969

	Total area sq.m.	Cold area sq.m.	Ice products per day-tons		Ice storage-tons		Freezing capacity-tons per day		Storage Frozen capacity-tons -18/-20 deg. C.		Cold storage capacity-tons 0/+2 deg.C	
			Theoretical	Actual	Theo.	Actual	Theo.	Actual	Theo.	Actual	Theo.	Actual
SURVIF	3,600	2,300	65	50	150	150	84	60	1800/1800 2000 2000		80	80
SOFRIMA	7,650	5,500	60	50	200	200	70	40	2000/1800 2500 2250		240	240
SOMAUPECO	9,000	-	20	20	-	-	12	12	180	180	-	-
IMAPEC 1/	60,000	28,000	85	85	-	-	60	60	1900	1900	-	-
TOTAL	80,250	-	230	205	350	350	226	172	5880/5680 6580 6330		320	320

1/ Freezing plant, cannery, fishmeal plant, drying factory

The freezing plant in the port, run by SOFRIMA, was very poorly designed: (a) the fish market is quite useless, and is indeed not even used, for very little fresh fish is actually sold at Nouadhibou, and this state of affairs is likely to continue for a long time to come; (b) the cold store for fish is also useless; the insulation will have to be almost completely replaced only 18 months after completion of the plant; (c) the freezing chambers are defective; (d) the drainage system for the fish-washing waste has been poorly devised; and (e) the traffic pattern is poor. If SOFRIMA is to perform its proper functions and raise the productivity of the plant, new equipment for the present 0° C cold store, to make storage at -20° C possible two additional drying tunnels to raise capacity to 75 tons per day, and public or private bonded warehouse space for renting cold storage chambers at -20° C to foreign firms will have to be installed.

Assuming the plant is overhauled and the missing equipment installed, the capacity of the freezing industry at Nouadhibou may be estimated as under in 1973:

	Whole fish Tons per year	80 percent whole fish, 20 percent fillet Tons per year
SURVIF	15,000	21,000
SOFRIMA	17,500	27,500
SOMAUPECO /1	8,000	8,000
IMAPEC	15,000	21,000
	55,500	77,500

/1 Assuming that the ice plant is converted into a brine freezing plant of the same capacity.

47. As the plants are only working at 30 percent of capacity, the cost of freezing and keeping the frozen products for one month at Nouadhibou works out at CFAF 25 to CFAF 30 per kg., depending on the firm, compared with CFAF 15.80 to CFAF 17.00 at Dakar and CFAF 13.60 at Las Palmas.

2. Drying

48. The output of salt dried fish is increasing steadily. It has risen from 3,440 tons at CFAF 84.70 per kg. in 1964 to 5,700 tons at CFAF 114.00 per kg. in 1969. The fish is delivered green, meaning lightly salted but not dried, to the processing plants, or to the pontoon of the Lloret Linares Co. where it is stored for export to the Canary Islands for drying.

On delivery the fish is either piled up for processing the following day or placed in brine vats or dry salt if it is to be kept for a longer period. The salt fish is washed and then left to dry on wooden racks for between 12 and 15 days after being beheaded and cut in two. It is shipped in 50 kg. bales (mullet in 30 kg. bales), wired together, bagged and steel banded. A single species (meagre -- sciaena -- croakers, shark, or mullet) is normally baled together. Miscellaneous fish when baled together are called Baccalao.

49. The processing firms carry out their drying by natural means, for which the climate is favorable at Nouadhibou. Hence, it is not essential to introduce artificial drying methods, which would only involve additional expenditure without increasing the selling price of the finished product. Nevertheless, IMAPEC intends to introduce artificial drying in the near future. Although the salt dried fish produced in Mauritania is generally satisfactory, precautions must be taken during storage as the dried fish absorbs moisture, particularly during transport to the consumer countries, most of which are situated in very humid equatorial areas.

50. There is no very extensive consumption of salt dried fish in Mauritania itself; the sedentary inhabitants of the Senegal valley prefer the unsalted dried fish to which they are accustomed, while the nomads who form the majority of the population eat very little fish of any sort. However, as will be explained later, the consumption of dried salt fish in the Senegal valley is likely to increase as a means of filling the gap between the steadily increasing demand for fish in that area and the relatively static output.

51. Three firms are drying fish in Nouadhibou in 1970, excluding the Spanish temporary installations, which have a floor area of 30,000 sq.m. and handle about 600 tons of salt fish per year.

52. The Societe Industrielle de Grande Peche (SIGP) is the oldest of all the fish processing firms in Mauritania, having been in existence since 1919. Its plant has an area of 50,000 sq.m., of which about 5,000 sq.m. are equipped with drying racks, and it can handle about 5,000 tons of salt dried fish per year. In addition it owns storage vats with a capacity of 2,400 tons of green fish in brine. Excluding any vessels, the value of the firm's plant is said to be about CFAF 120 million, including the bottargo processing plant at Timiris, and its turnover in fish processing including bottargo-making is about CFAF 400 million per year. It employs five foreign technicians and 120 Mauritanian workers.

53. Entreprise Generale Atlantique (EGA) was established in 1947 under the name of ENTRA. The firm owns a drying area of 30,000 sq.m. in three separate units, and has a capacity of 5,000 tons of dried fish per year. The equipment includes drying tables covering 2,500 sq.m. and the firm has its own brine storage tanks. The capital value of the plant is said to be about CFAF 120 million, and the turnover some CFAF 260 million. The firm employs seven foreign technicians and 200 Mauritanian workers.

Very recently the firm has branched out into new fields by taking over the SOMAUPECO cold storage plant and taking up a substantial share in SOFRIMA, the firm that runs the EDF cold storage plant.

54. The two fish drying firms described above receive their supplies from some 110 miscellaneous vessels -- launches, (sardiners), and even trawlers -- from the Canary Islands. All these vessels deliver fish under contract either on an annual or on a seasonal basis. The drying firms do not use the fishing port at all as they have their own discharge facilities. As the profits of these firms rarely come to more than 10 percent of their investment, they have made little effort to improve their equipment or to undertake more elaborate processing techniques.

55. The IMAPEC fish drying plant has been designed to produce some 6,000 tons of fish products per year, representing 18,000 tons of whole fresh fish. The production figure excludes the capacity of the artificial drying tunnel, which is not yet known.

56. Despite the steady increase in output for the past 15 years, this type of processing is particularly vulnerable to competition, and the industrialization of some of the countries that now buy salt dried fish -- Ghana, Congo-Brazzaville, and Gabon -- could rapidly reduce the outlets for the Mauritanian product very substantially.

57. The Imraguen produce salt semi-dried fish in their camps and send it to the drying plants in Nouadhibou, where it is packed for export. In addition they produce dried unsalted fish at Memghar, south of Timiris. The fish is beheaded, gutted, and almost detached from the backbone before being laid out to dry on wooden racks or even sometimes on the sand. In 1969 the Imraguen are said to have produced 533 tons of dried fish with a value of CFAF 20.2 million in this way, compared with 233 tons in 1964.

3. Bottargo and canned tuna

58. Bottargo is the name given to the roes of yellow mullet complete with membrane after salting, pressing, drying, and wrapping in a substance composed of beeswax and paraffin wax to protect them from the air. Bottargo is made by the Imraguen at Timiris and packed by SIGP. The season runs from October to March. It takes 35 kg. of mullet (both male and female) to make 1 kg. of bottargo. The producers are said to have received CFAF 9.5 million for a total of 25 tons in 1969, making CFAF 300 to CFAF 425 per kg., compared with CFAF 2.8 million for eight tons in 1964. The f.o.b. export price is some three times as great.

59. The Canary Islanders living in Nouadhibou use meagre roes to prepare a substitute for bottargo. In 1969 they made about 15 tons with a value of CFAF 3.5 million.

60. There has been no fish canning plant in Mauritania since 1957. However, among its other projects, IMAPEC intends to bring a tuna cannery with a capacity of 3,500 tons per year into production in 1971. This would

require supplies of about 4,900 tons of fresh fish. The turnover of such a plant would be about CFAF 1,000 million per year. If the plant is to receive sufficient supplies to keep it going at full capacity, a large part of the Spanish fishing fleet operating in the Atlantic would have to abandon Las Palmas and the continental Spanish ports, and unload its catch at Nouadhibou, since the total tuna output of the Canary Islands was only 3,000 tons, and that of Spain as a whole no more than some 17,000 tons, in 1968. Hence the fulfilment of the IMAPEC program would require a distinct change in the policy of the Spanish authorities with regard to tuna fishing.

4. Fishmeal

61. Until 1969, fish debris from Nouadhibou was sold in La Guerra, Spanish Sahara, at CFAF 4 per kg. for conversion into fishmeal. The two plants there, which have a capacity of 50 tons and 30 tons per day of debris respectively, also use between 8,000 and 10,000 tons per year of sardines caught by the Canary Islanders and landed for the most part at Nouadhibou, only a small proportion going directly to La Guerra. In 1969 the two plants together produced 1,600 tons of fishmeal and 400 tons of oil, which sold for CFAF 47 and CFAF 30 per kg. respectively. SOMIP and IMAPEC have each opened a new fishmeal plant at Nouadhibou during 1970.

62. The Societe Mauritanienne des Industries de la Peche (SOMIP) Mauritanian Fish Processing Corporation was established in 1966 as part of the semi-public SOMAP/SOMIP group. The plant, which covers an area of 4,000 sq.m. and has a capacity of 600 tons of raw materials per day, was completed in 1967 but only came into operation in January 1970 1/ because of the disbandment of the SOMAP fishing fleet, which was intended in part to keep this plant supplied. Total investment has been CFAF 456 million, and the plant employs six expatriates and 30 Mauritanians. The whole installation has been placed in the hands of a private firm, COMAPIC, which has contracted with a Dutch concern to take the whole output of its fleet of ten vessels at a price of CFAF 4 per kg. COMAPIC has undertaken to produce 15,000 tons of fishmeal per year, starting in 1971. In February 1970 it was processing 1,500 tons per month of raw materials; nevertheless, even though throughput is expected to increase, total output is not likely to exceed 8,000 tons of fish products in 1970. The discharge equipment -- basically a pump with a capacity of 50 tons per hour -- is sufficient to enable the plant to handle 600 tons per day, but the lack of berths near the slip and the absence of maintenance shops will make it difficult to expand the fishing fleet, which for the time being is assisted by a mother ship lying offshore.

63. IMAPEC's fishmeal plant has a capacity of 250 tons per day or about 62,500 tons per year on the basis of 250 working days per year. For the present, the aim is to process 100 tons of fresh fish per day; this would re-

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1/ More detailed information on SOMIP will be found in Annex 4.

quire some 25,000 tons of raw materials per year and give an output of 5,000 tons of fishmeal and 1,250 tons of fish oil per year. If this program is maintained, the turnover would be CFAF 288 million.

5. Summary

64. On January 1, 1970 some CFAF 4,400 million were invested in the fish processing industry at Nouadhibou; of this amount the IMAPEC plant accounted for approximately CFAF 2,000 million. During the next five years additional investments will have to be made both in the port cold storage facility to bring it into line with current requirements and in the existing plant to make it operable once more. The total involved is likely to be in the neighborhood of CFAF 600 million.

65. In 1969 the output of the fish processing industry amounted to CFAF 1,445 million. The figure is likely to be around CFAF 4,515 million in 1970, and it could reach CFAF 9,327.7 million in 1973, if the port facilities are improved to enable fishing vessels to take on supplies in a satisfactory manner, which they are not able to do at present.

E. Port Installations

1. The commercial port

66. The commercial port consists of a pierhead 22 m. wide and 65 m. long running north and south 200 m. from the shore in water 5.50 m. deep. A channel 8 m. deep has been dredged to the east of the pierhead; the depth on the west side is 6.00 m. The pierhead is connected to the shore by a pier 215 m. long with a roadway 9.00 m. wide on top. Running down from the pier are three ramps 21 m. long that can be used for loading or unloading at any state of the tide. At the foot of the pier there is a quay 155 meters long in water 2 m. deep which can be used for unloading heavy items from lighters. Lighterage is also used for discharging vessels with a draft greater than 7 m. or a length exceeding 130 m. On shore there are 21,800 sq.m. of open storage space, 6,100 sq.m. of warehouses and 840 sq.m. of offices. Cargo is unloaded by ships' cranes and then shifted on pallets. There are no special facilities for discharging fish.

67. During the past five years the port has handled between 65,000 tons and 70,000 tons per year, with an exceptional 110,000 tons in 1967. About 50,000 tons per year has been imports. The normal capacity of the port is about 70,000 tons per year, with a maximum of about 120,000 tons per year. The existing quay cannot handle all the vessels that call at Nouadhibou.

According to official sources, no more than 6,000 or 7,000 tons of fish pass through the port in a year, while some 15,000 tons are exported annually. SIGP and EGA, the two drying firms, have their own facilities, and use them for shipping part of their finished products.

68. SAMMA -- Mauritanian Lighterage and Handling Company -- which has a contract with the Government, has rented the installations in the commercial port and thus obtained a monopoly of lighterage and stevedoring. As the firm gives priority to cargo vessels wishing to tie up in the port, the captains of fishing vessels have sometimes been forced to interrupt discharging operations in order to make room for a freighter. The quay in the commercial port is therefore of little use for discharging fishing vessels.

2. The fishing port

69. The fishing port of Nouadhibou is located at Pointe Chacal. Work on the port started in December 1965 and was completed, including the cold storage area and the fish market, in September 1968. The port consists of a fish quay 285 m. long in water dredged to a depth of 6 m. intended to handle 20,000 tons of fish per year, and a cold storage plant. Loading and unloading is carried on by ships' cranes and by the cranes on the quay. There is also a slip which cost CFAF 35 million, capable of taking vessels up to 3.50 m. draft. The whole port was paid for by an FED grant. The total cost, amounting to CFAF 1,411.2 million, was made up of CFAF 770 million for engineering works, CFAF 370 for the cold storage plant, CFAF 140 million for the slip and administrative buildings, and CFAF 131 for preliminary surveys, supervision, and dredging. The fish quay is defective in a number of ways that must be remedied if it is to handle not only future but even present traffic adequately.

70. In calculating the capacity of a port the rule of thumb is to reckon that fishing vessels can discharge 100 tons per meter of quay per year. The volume is reduced to 80 tons per year if the vessels take on supplies at the same time, as they do at Nouadhibou. On this basis, the present quay can handle no more than 20,000 tons per year, although an additional 5,000 tons may be gained by using the three ramps alongside the pier. Yet some 30,000 tons were handled at Nouadhibou in 1969, and traffic is expected to reach 41,600 tons in 1970. Furthermore, the storage and production capacities already built, equal ten times the volume of fish unloaded in 1969.

71. Quite apart from the shortage of capacity, there are matters that need urgent improvement. As the port is laid out in such a way that fishing vessels may be damaged by being flung against the quay by the swell, there is much shifting of positions, and the port is often unusuable for several days at a time. A breakwater at right angles to the shore and to the prevailing winds is essential. Furthermore, in 1970, 18 months after the port was brought into service, the only way in which vessels can be fuelled alongside is by tank trucks, and there is only one delivery point for ice. These difficulties are intensified by the limited width of the quay, which is so narrow that two trucks cannot pass. It would have been better either to have brought the warehouse closer to the quay and reserved it for storing items loaded or unloaded on the quay, or to have provided more space. Furthermore, there is no repair shop or duty-free store for items consumed at sea, and the

slip is too small to handle the trawlers with a draft of 3.50 m. to 4.50 m. and the tuna fishers of between 4.50 m. and 5.50 m. that usually call at Nouadhibou.

72. Another factor that has an adverse bearing on the fishing industry is the relatively high cost of fuel oil, electricity, water and ice, compared with prices in the other major fishing ports on the west coast of Africa. 1/

Cost of Ships' Supplies at West African Ports

	Fuel oil CFAF per liter	Electricity HT. CFAF per kwh	Electricity LT. Power CFAF per kwh	Water CFAF per cu.m.	Ice CFAF per ton
Nouadhibou	9 F /1	11	34.5	170	1300/3200 /2
Dakar	7.50 F	9	-	90	3,000
Las Palmas	7.25 F	20	40	40	1,800
Pointe Noire	7.70 F	-	-	100	4,000
Douala	8.60 F	10	18	45	4,100
Angola	15 F	-	30	25	4,300
Abidjan	7.10 F	9	20	80	3,000

/1 Deliveries by tank truck.
/2 Cost price: CFAF 3,200. Subsidized sale price: CFAF 1,300.

73. After being autonomous for a year, both the fishing port and the commercial port have been taken back under direct government control, and now come under the responsibility of the Chief of the Nouadhibou Division of the Public Works Department, who is supposed to provide for their upkeep out of funds raised by the imposition of port dues, Customs charges, and other taxes and levies.

In the fishing port vessels are subject to a number of charges collected by the harbor master, who is the accountable officer, and paid to the Treasurer-Paymaster at Nouadhibou (see Annex 5). In 1969 the two ports together took in CFAF 26 million, but any excess of revenue over expenditure goes straight to the central government budget; the ports do not see a single penny of their surpluses. So far as fishing vessels are concerned, the present arrangement leads to serious losses of revenue as fishing vessels are granted 30 days' free stay if they anchor offshore, and many vessels are careened in the Baie du Repos where they pay neither dues nor slip fees. Moreover, no charges are paid on most of the operations connected with the loading, unloading or transhipment of fish either by vessels anchored offshore or by those in the Baie du Repos.

1/ For details, see Annex 5.

F. First Development Plan and Actual Investment

74. The First Development Plan 1963-66 called for investments in the fishing industry totalling CFAF 1,510 million, of which CFAF 760 million was to be financed by public and CFAF 750 million by private funds.

Actual investment in the fishing industry in the period 1963-70 is set out below:

Investment in the fishing industry, 1963-70

		CFAF millions
Public funds		
EDF		1,411.2
FAC: port survey	9	
SOMAP	190	199
CCCE: SOMAP		120
Mauritanian public funds: SOMAP/SOMIP		116
Suppliers' credit: SOMAP/SOMIP, with Government guarantee		2,292.6
Total public funds		4,138.8
Private funds		
SOMAP: subscription to capital		117
CCCE loans to managing director of SOMAP		105
SOMIP: subscription to capital		54
SURVIF: cold storage plant		650
SOMAUPECO: cold storage plant		130
IMAPEC		2,000
Resident Spanish fishing vessel owners		450
French fishing vessel owners salt water		60
Traditional fishing (Mauritanian and Senegalese)		31.2
Traditional fresh water fishing		120
Total private funds		3,717.6
Public and Private Investment:		7,856.-
of which SOMAP		2,471.6
IMAPEC		2,000.-
Other		3,384.4

75. Taking the period 1963-70 as a whole, there has been far more investment in the fishing industry than had been anticipated. Even subtracting from the CFAF 7,814 million shown above the purely unproductive investment in SOMAP and the IMAPEC investments that are not likely to start producing anything until later in 1970, the total is still twice as great as the Plan figures. On the other hand, the 27,800 tons of fish landed at Nouadhibou in 1969 only represented some 54 percent of the Plan figures, which is a further

indication of the poor use made of the investments carried out prior to 1969. The noticeable improvement in management during 1970, the introduction of the EDF cold storage plant in the port and the start of operations by the IMAPEC group will probably bring about landings sufficient to fulfill the Plan by 1971. For, although it has been badly run hitherto, the fish processing complex brought into existence since 1964 is of a remarkably high technical standard and should enable Mauritania to expand its fishing industry as rapidly as the capacity of the port will allow.

G. Manpower and Technical Training

76. The present and probably future labor situation in the Mauritanian fishing industry may be tabulated as under:

	1970 Estimate				1973 Forecast			
	At Sea		On Land		At Sea		On Land	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
Mauritanians	470	80	1,048	75	650	150	1,780	-
Foreigners								
-Senegalese	250	-	-	-	400	-	-	-
-Others	475	1,620	82	-	750	850	120	-
Total	1,195	1,700	1,130	75	1,800	1,000	1,900	-

77. Wages paid to sailors and fishermen amount to about CFAF 350 million per year, of which over CFAF 300 million go to foreigners and about CFAF 45 million to Mauritanians. There are almost no paid fishermen in the traditional sector, so that net earnings in that sector can be calculated by subtracting 20 percent from the turnover figures. Including these earnings, total income derived from fishing in Mauritania is CFAF 750 million per year.

The average income per fisherman is roughly as follows:

Mauritanians and Senegalese			
Fresh water			CFAF 37,500 per year
Salt water	:	traditional	CFAF 220,000 per year
		large-scale	210,000 per year + 2 kg of fish per day
Foreigners			CFAF 710,000 per year.

The high incomes of the salt water fishermen in the traditional sector are mainly due to the increase in the consumption of fresh fish at Nouakchott and Nouadhibou and to the production of bottargo, which brings them CFAF 57,000 per head per year. However, there are no more than 200 to 300 fishermen in this sector. The average earnings of all Mauritanian workers together have been put at CFAF 30,250 per year. Some 1,205 persons are employed in the processing plants in 1970; of these 82 are foreigners and 75 are temporaries. In 1969 they earned between them some CFAF 180 million.

78. The social climate at Nouadhibou would be greatly improved by an expansion of the labor market, since there are some 1,338 permanently resident Mauritanians who engage in fishing, making a total of over 5,000 persons if their families are included. By 1973 the number of Mauritanians and foreigners working permanently either at sea or in the processing plants is expected to exceed 3,000, including some 1,070 foreigners, making a total of 12,000 persons including their families -- a figure larger than the whole population of Nouadhibou in 1969. This growth will certainly cause town-planning difficulties, but it should be possible to overcome them and make Nouadhibou an attractive port of call for foreign fishing vessels (See par. 128).

79. The demand for skilled sailors is quite large for a country that has no seafaring tradition and a very small population in the coastal areas. Moreover, even in the processing plants it is difficult for people that are largely nomadic by tradition to adjust themselves to working regular hours.

80. A new curriculum has been added to the Centre Mamadou Toure to try to overcome these difficulties, but we believe that the training offered in salt water fishing ought to be completely reviewed. What now is offered does nothing but add to the number of unemployed: out of 500 students enrolled in these courses, only 250 have regular jobs. The aim ought to be to attract for training young people who have served as cabin boys and have thus learned something about the sea as well as demonstrating an interest in what is after all a very tough occupation. The training should be mainly practical, and should not blindly follow that given in France. In particular, care should be taken to avoid training skippers and chief engineers for vessels for small-scale fishing, when in fact the trend in Mauritania is entirely towards large-scale operations.

There should also be periodical refresher courses for the most capable seamen, to enable them to obtain advancement as crew members on the foreign vessels which provide virtually all the available employment in the modern fishing sector at Nouadhibou. Taken together with the obligation imposed upon foreign operators to include an increasing proportion of Mauritanians among their crews, refresher courses of this sort ought to enable Mauritania to develop the nucleus of a seafaring community.

II. The Trade in Fish

1. Imports

81. As Mauritania and Senegal were until recently part of a customs union, a large proportion of imports of frozen, etc. fish products have never been recorded. In addition, there is an uncontrolled flow of "traditional" products, mainly dried fish, across the Senegal River; while Moroccan sardines make their way across the Spanish Sahara frontier into the towns of the northwest. But even taking these unrecorded flows into account, fish imports are very small; they certainly do not exceed 150 to 170 tons per year with a value of between CFAF 20 million to CFAF 45 million. Most of the imported fish is canned; small amounts of fresh fish are flown in from Ivory Coast and Senegal.

2. Exports

82. The volume of fish exported is known fairly accurately as all fish exports pass through Nouadhibou, except for small amounts of dried fish -- estimated at 70 tons in 1969 -- sent across the river to Senegal by the Imraguen. In the Senegal Valley, imports of fresh water fish are said to equal exports, although the exact quantities are not known.

83. The most important items in the fish trade in the modern sector are salt dried fish and frozen fish, with bottargo, lobsters and some other shellfish of minor significance.

Exports of fish products

Volume : tons
Value : CFAF millions

Year	Dried fish & Salt dried fish		Frozen fish		Bottargo		Dried fish roes		Lobster	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
1964	3,450 /1	322.5	1,344	96.2	5.9	6.7	-	-	24.4	19.3
1969	5,921 /2	670.0 /3	6,292	453.0	20.1	20.9	14.2	8.5	59.0	68.0

/1 Including 10 tons exported by the Imraguen.
/2 Including 70 tons exported by the Imraguen.
/3 Plus 1,500 tons exported directly by the Lloret Linares Co. from its own pontoon.

The total volume of exports, in fresh weight equivalent, increased by 18 percent per year from 11,710 tons in 1964 to 26,730 tons in 1969, while the value of exports increased by 23 percent per year from CFAF 444 million to CFAF 1,277 million. The rate of growth was below average for dried fish but very high indeed for frozen fish, exports of which more than quadrupled in the five-year period thanks to the establishment of two new plants in 1966 and 1969 respectively.

84. Exports of salt dried fish have increased steadily since 1962 at an average rate of 14 percent per year after remaining almost unchanged for some six years. Nearly three quarters of the exports go to Congo-Brazzaville, with which Mauritania concluded a Fish and Sugar Agreement in 1967, providing for the export of at least 4,000 tons of salt dried fish per year. Between 16 percent and 26 percent of exports go to other African countries -- Congo-Kinshasa, Gabon and Ghana -- while the remainder go to Spain and Italy. One of the factors favoring Mauritania has been the recent isolation of Angola, so that Mauritanian products have been able to enter markets traditionally supplied by that country. Several African countries have been trying to develop their own fishing fleets, and this may have an adverse effect on exports in the future, although the cessation of hostilities in Nigeria should open that market to Mauritanian salt dried fish at least for some years to come.

85. After a number of unsuccessful attempts by foreign firms, the production and export of frozen fish began in earnest in 1966 with the establishment of the SURVIF freezing plant as part of the SOMAP/SOMIP group. In 1969 SOFRIMA opened the EDF cold storage plant in the port, and frozen fish exports nearly doubled between 1966 and 1969. While up to 1968 the main markets were in Europe -- Italy, Greece, and France -- Japan became a major customer in 1969, and exports of frozen sardines to Ghana and Nigeria are increasing continuously. Thirty eight percent of exports have been bottom fish, 30 percent octopus and squid, 25 percent miscellaneous bottom fish, and 7 percent coastal surface fish. Throughout this report octopus and squid have been included with bottom fish for statistical purposes.

86. Lobsters caught both by local fishermen and by Canary Islanders are exported by air, mainly to France, mostly in the form of green live lobsters. Exports more than doubled from 24 tons in 1964 to 59 tons in 1969, but the quantities are still small because of overfishing and the consequent restrictions introduced both by Spain and by Mauritania in their territorial waters. In 1969 the price f.o.b. at Nouadhibou (CFAF 1,150 per kg.) was higher than the landed price paid to French fishermen in France, which only shows how antiquated is the system of shellfish distribution.

87. Like lobsters, bottarge is sold mainly in France, which takes 80 percent of Mauritania's exports of this product. In addition, the Imraguen sell small quantities to Spain. Exports rose from an average of four tons per year between 1962 and 1964 to more than 20 tons in 1969, while the price f.o.b. rose from CFAF 650 per kg. to more than CFAF 1,000 per kg., giving a total export value of nearly CFAF 21 million, a large amount for the small number of Imraguen fishermen involved.

88. The balance of trade in fish and fish products is moving constantly in favor of Mauritania, as exports have been increasing much more rapidly than imports. The excess of exports over imports more than doubled from 11,560 tons in 1964 to 26,580 tons in 1969, while the value of the excess tripled from CFAF 430 million to CFAF 1,230 million. Mauritania is thus a substantial net exporter of fish products.

3. Domestic consumption

89. The domestic consumption of salt water fish more than doubled from 1,030 tons in 1964 to 2,260 tons in 1969, giving an average growth rate of 17 percent per year, while consumption per head doubled from 1 kg. per year to 2 kg. per year. This is still a fairly small amount, and is likely to remain so because the Arabs -- who make up 80 percent of the population of Mauritania -- eat very little fish, while the settled farmers in the Senegal valley have a marked preference for fresh water fish. Traditionally, salt water fish has been eaten by the population in the region west of the line Rosso-Atar and along the road Rosso-Tindouf. The Imraguen consume part of their catch themselves, thus accounting for 400 tons, while salt water fish are also sold to non-Arabs in the towns and mining centers like Nouakchott, Nouadhibou, F'Derik and Zouerate, which together take between 900 tons and 1,000 tons per year. Salt water fish are virtually unknown among the nomadic inhabitants of the desert. While almost all the fish consumed in the towns and mining centers is eaten fresh, the Imraguen eat mostly dried fish.

90. Very recently there has been an increase in the consumption of Imraguen dried fish in the Senegal valley to make good the gap between the considerable increase in demand and the relatively static production. In 1969 between 700 and 800 tons were sold in this area. Consequently, the proportion of unprocessed salt water fish in total fish consumption in Mauritania fell from 67 percent in 1964 to 43 percent in 1969, while the consumption of dried fish rose from 29 percent to 53 percent, the remainder consisting of imported canned fish.

91. Only fish caught by local fishermen is sold domestically in Mauritania; the foreign-owned firms in Nouadhibou are concerned entirely with exports. There are three sources of fresh fish for the domestic market:

(a) Very small amounts are sold by the Imraguen camps when the fishermen return from fishing at the same time as a truck on the Cape Timiris-Nouakchott run passes by. These trucks travel part of the way along the beach because of the lack of roads, and the drivers buy fish which they sell in Nouakchott. The increase in the demand for fresh fish in Nouakchott has brought about a substantial growth in this profitable trade and thus enabled the Imraguen to increase production. Nothing is done to preserve the fish either on the boats or in the trucks, but as the journey to market only takes four hours and is usually made at night, the fish reaches market in good condition;

(b) Nouakchott receives its fish mainly from Senegalese fishermen who fish from the shore and use trucks to carry the fish to market, where they sell it themselves;

(c) At Nouadhibou a few small fishing boats, both Mauritanian and Senegalese, land fish for local consumption. This is sold either directly by the fishermen themselves on the beach or to intermediaries who dispatch it partly to the inland mining centers. Ice is used during the journey inland, which is usually made by rail. The customers are the MIFERMA group or individual traders, the latter often making illicit use of empty ore wagons.

Fish Prices at Various Stages

CFAF per kg.

	Landed price	Cost of Transport	Wholesale Price	Retail Price	Point of Sale
Fresh fish					
Imraguen camps	30	15	-	75	Nouakchott
Nouakchott fishermen	60	5	-	75	Nouakchott
Nouadhibou fishermen	50	-	-	60/80 /1	Nouadhibou
				150 /2	Nouadhibou
				100	Zouerate
				175	Atar
Imported fish: Nouadhibou	-	-	-	300/500	
Dried fish					
Imraguen camps	38	15/30 /3	55/150	220/300 /3	Nouakchott
				500	Atar/Akjoujt

/1 Market price for miscellaneous fish
/2 First quality fish on ice
/3 Depending on the season.

92. The salt fish produced by the Imraguen is sent to the drying plants at Nouadhibou by launch. The non-salt dried fish produced by the Imraguen is often of inferior quality because it is spoilt by the sand in which it lies while drying. The product is sent by truck to Nouakchott or distributed by road along the Senegal valley. It is sold retail by the piece, hardly ever by weight. Virtually no processed fish is sold in Nouadhibou. A few intermediaries travel illicitly by the MIFERMA railroad to sell their wares in Atar, Zouerate or F'Derik. The main economic agent for the distribution of dried fish is the wholesale trucker who visits the drying areas, purchases the dried fish on the spot, carries it in his own trucks and sells it to retailers.

III. PROSPECTS FOR EXPANSION AND ACTION NEEDED TO ENSURE EFFICIENT OPERATION OF EXISTING PROCESSING PLANTS

A. Introduction

93. Hitherto the use of up-to-date methods at Nouadhibou has been inhibited by the following factors:

1. Inadequate port facilities

The port is too badly equipped to be able to supply all the existing processing plants; there are no maintenance or repair shops and no facilities for careening; water, fuel oil and ice are expensive;

2. Inadequate customs policy

Imports of equipment and parts for the fishing industry are subject to high import duties because there are no duty-free stores for these items, as there are in the rival ports;

3. Lack of local skilled labor and of arrangements for accommodating foreigners

The result is that foreign labor, which is not at all attracted by life in Nouadhibou, has to be paid very highly;

4. The small size of the domestic market for any part of the catch that cannot be disposed of abroad, and the difficulty of marketing some of the Mauritanian products abroad, especially when the importing countries are able to send their own vessels into Mauritanian waters, and thus cut down on their need for imported fish products;

5. Lack of capable, energetic and financially stable entrepreneur

94. All these difficulties can be overcome sooner or later, if there is a sufficient desire to do so. Indeed the last deficiency has already been largely eliminated following the liquidation of the SOMAP/SOMIP group: (a) by placing the abandoned plants in the hands of capable entrepreneurs. These businessmen have been greatly assisted by the banks, which granted a substantial moratorium on debt payments, and (b) by the start of operations by the IMAPEC group, whose management and financial resources are both of the highest quality. The shortage of local skilled labor is admittedly a major problem that cannot be resolved very rapidly; nevertheless, it ought not adversely to affect the short-term expansion of the fishing industry if the arrangements for accommodating foreigners are improved. Once that is done, expansion could be started with a relatively high proportion of foreign workers, with more Mauritanians being taken on as they are trained. The remaining problems that need to be solved quite quickly are therefore:

- Markets and outlets;
- Availability of supplies;
- Capacity of existing facilities;
- Customs regime.

These topics will be examined in turn.

B. Markets

95. Eighty-seven percent of the fish consumed in Mauritania at the present time is fresh-water fish. The prospects for the domestic market in this category will therefore be discussed separately (see Part Two: River and Lake Fishing). In any event export markets must be the mainstay of any expansion of the fishing industry in Mauritania. The aim should be to find outlets in the industrial countries of Europe for frozen filleted bottom fish, canned surface fish, fishmeal and fish oil; and outlets in the African countries for frozen coastal species and salt dried bottom fish. Japan should provide a good outlet for frozen bottom fish, especially octopus and squid.

1. The industrial countries of Europe

96. Mauritania's main markets in Europe are bound to be the Common Market countries, Switzerland and Greece, where changes in the pattern of consumption and in the output of deep-frozen fish products, filleted or whole, led to a quadrupling of the gap between production and demand from 13,350 tons in 1961 to 56,285 tons in 1966.

97. The consumption of whole fish in those countries has risen steadily from 20,850 tons in 1961 to 120,000 tons in 1966, half this increase taking place in the last three years of this period. There is every reason to believe that the increase will continue at a rate of at least 10 percent per year until 1975. The actual increase in import requirements will, however, be rather smaller than these figures might indicate, because imports are tending to be replaced by domestic supplies. Assuming that part of the domestic fish catch of the countries concerned is exported, some 61,000 tons of whole tropical fish could be imported into the Common Market countries, Switzerland and Greece in 1973. However, taking account of the desires of importers, there is likely to be an effective market for somewhere between 7,000 tons and 30,000 tons of Mauritanian fish products, including some 1,500 tons of cephalopods. Of these quantities, Italy alone is likely to take rather more than half.

98. The consumption of fish fillets rose from 36,300 tons in 1963 to 67,000 tons in 1966. Nevertheless this increase only represented a rise of 30 percent per head, while output rose by 95 percent. In other words, even for fillets the consumer countries preferred domestic supplies to imports. In 1973 the market theoretically available should amount to some 61,000 tons; but again bearing in mind the type of fish most in demand, the outlets available for Mauritanian fish products should amount to between 2,000 tons and

8,500 tons, representing between 5,700 tons and 25,000 tons of fresh fish. Hence, the Common Market countries, Switzerland, and Greece should be able to absorb between 12,600 tons and 55,000 tons of frozen fish, taking fillets and whole fish together.

99. The world market for canned tuna, the only form that would concern the processors of Nouadhibou, is very much a closed shop. In the long run Mauritanian producers may perhaps be able to dispose of between 1,000 tons and 2,000 tons (fresh weight equivalent) of canned tuna in oil, in France, and even that depends on obtaining access to part of the quota now made available to other French-speaking African countries. However, IMAPEC has close links with the Spanish Government, and it seems likely that the promoters of that undertaking have already obtained firm commitments for disposing of their output.

100. The world market for fishmeal and fish oil has been expanding rapidly during the past two years. World production rose from 2.9 million tons in 1965 to 4.8 million in 1968; at the same time stocks in Peru fell by more than 60 percent to somewhat less than 450,000 tons in 1969. World exports of fishmeal rose by 20 percent from 1967 to 1968, when they reached 3.5 million tons per year, while fish oil exports rose by 5 percent to 682,000 tons in the same year. The Common Market countries provide a very large market for fishmeal, as their requirements rose from 650,000 tons in 1956 to 1,450,000 tons in 1968. As Peruvian output seems likely to reach its peak in the next ten years, there should be no difficulty in marketing the Mauritanian product abroad.

The continued rise in fishmeal prices tends to support this view.

101. It should be noted that one of the conditions for the entry into the Common Market countries of products from other members of the Community and the Associated States in Africa is that there shall be no discrimination in treatment as between the vessels of the members of the Community.

If a product is to be considered of Mauritanian origin, the fish are supposed to have been caught by Mauritanian vessels manned at least partly by a Mauritanian crew. Although Mauritania has so far been exempt from the application of this rule while its fishing fleet is being built up, the whole question of origin may well be raised again shortly; if it is, the Common Market officials intend to press for negotiations leading to the establishment of preferential tariffs. If Mauritania is to benefit from most favored nation treatment, it is recommended that steps be taken forthwith to ensure that there can no longer be any querying of the origin of the fish products exported from Nouadhibou.

2. Africa and Japan

102. Although still expanding steadily, the market for salt dried fish does not seem to have such an unclouded future as is generally maintained. Both the establishment of domestic fishing fleets by many countries and the

extraordinary success achieved with the distribution of frozen fish in African countries that used to import large amounts of salt dried fish should serve to make any forecaster cautious. For this reason, it is not expected that the two older plants will expand their sales in Africa; on the other hand, IMAPEC may well find additional markets mainly outside Africa. In addition, the domestic demand should amount to some 11,000 tons (fresh weight equivalent) in 1973.

103. Figures for the trade in frozen sardines between the 14 West African countries show that demand has steadily exceeded supply, the gap rising from 300,000 tons in 1960 to 350,000 tons in 1970, and this state of affairs is likely to continue until 1973. Hence, there should be a market for about 350,000 tons of fish, of which some 340,000 tons will be salt water fish. A survey of the fish available in the tropical areas of the Atlantic Ocean shows that this demand can only be met by freezing bottom fish caught in the South Atlantic or surface coastal fish such as sardines. The significance of this market for Mauritania, if the newly located sources of supply are confirmed, is clear. It should be possible to export some 20,000 tons per year to the West African countries, thus increasing the throughput of the freezing plants in Nouadhibou by some 25 percent. Furthermore, sardines are tending to take the place of herring in Europe and it should be possible to market several thousand tons there from 1971 onward, although it is still too early to say just how that market will develop.

104. It is very difficult to study the Japanese market, potentially the largest in the world, because the Japanese demand for Mauritanian fish is mainly a question of decision by the Japanese Government. There seems little doubt that Japan will become an increasingly large importer of fish, and it is worth noting that under the Japanese-Mauritanian agreements Japanese importers have undertaken to purchase 28,500 tons of Mauritanian frozen products per year, of which 25,000 tons are to be octopus and squid, representing between 32 percent and 38 percent of the capacity of the freezing plants at Nouadhibou. We have conservatively estimated that this demand could rise to 30,000 tons by 1973.

3. Total Demand

105. Estimated total demand from abroad for Mauritanian fish products (fresh weight equivalents)

Tons

	1970	1973	1975
	Estimated production at Nouadhibou	Estimated Demand	
1. Frozen fish			
Europe: Whole fish	n.a.	7-30,000	8-33,000
Fillets	-	6-25,000	6-25,000
Sardines	-	2- 3,000	5-10,000
Japan	n.a.	30,000	30,000
Africa: sardines	-	20,000	30,000
Total	21,000	65-108,000	79-128,000
2. Tuna	-	5,000	5,000
3. Salt dried fish	21,600	22,000	22,000
4. Fishmeal) Fish oil)	50,000/2	unlimited/1	
5. Total: Bottom fish/3	41,600	65-107,000	66-110,000
Surface fish/4	50,000	unlimited/4	
Oceanic pelagic species (tuna)	-	5,000	5,000

/1 Based on the production capacity available in Mauritania.
/2 Excluding 10,000 tons processed at La Guerra but landed at Nouadhibou.
/3 Whole fish and fillets; frozen fish for Japan; salt dried fish.
/4 Sardines, fish for fishmeal and fish oil.

The table above shows that export demand should not be a restraint on the expansion of fisheries or fish processing in Mauritania, since present output is far from meeting the demand in many fields. In the frozen fish market, where the demand for whole bottom fish and fillets has clearly defined limits, there are great untouched opportunities for marketing frozen

sardines. The demand for tuna depends mainly on the policy of the Spanish authorities in this regard; but IMAPEC's exports to Spain and the rising domestic demand (about 9,000 tons) give promise of new outlets for salt dried fish to supplement sales to the traditional markets in the African countries. The world demand for fishmeal and fish oil is increasing so fast that there should be no difficulty in disposing of any foreseeable Mauritanian output.

C. Availability of Supplies

106. While demand is not likely to prove a constraining factor for Mauritanian producers, the availability of fish supplies may well become a matter of great concern.

Estimated Supplies and Current Production

Tons per year

	Fish Available		Current Output (1970 estimates)		
	In Mauritanian territorial waters	In the whole East Central Atlantic	Landed at Nouadhibou	Caught in Mauritanian territorial waters	Caught in the whole East Central Atlantic
Bottom fish					
Marketable	150,000	300,000	62,500	143,500	250,000
Only usable for fishmeal	75,000	150,000	-	-	-
Surface fish					
Coastal	3-400,000)		40,000	40,000	450,000
Oceanic (tuna)	-)	1,000,000	-	-	50,000
Total	5-600,000	1,450,000	102,500	183,500	750,000

107. The table above makes it clear that only about 50 percent of the supplies available in the East Central Atlantic are now being exploited. However, for marketable bottom fish (used for freezing and for salting or drying), the figure is much higher, being already between 80 percent and 90 percent for the whole area and 95 percent for the area in Mauritanian territorial waters. If the throughput of the freezing and drying plants at Nouadhibou, now only working at a small percentage of capacity, is to be raised, an increasing proportion of the bottom fish caught in Mauritanian territorial waters will have to be landed at Nouadhibou. This would entail a gradual reduction, and perhaps finally the complete elimination, of fishing

permits for foreign vessels that do not land their catch in that port. Furthermore, the freezing plants will have to cease concentrating exclusively on bottom fish and start freezing sardines, of which large supplies are available and the market abroad for which is substantial.

108. The supplies of surface fish (including sardines) available in Mauritanian territorial waters have so far not been very greatly exploited, perhaps because the supplies themselves are not yet fully known; they should, however, make it possible to increase deliveries to the processing plants substantially. Hence, both in the short term and in the more distant future, if proper use is made of Mauritania's territorial waters there should be no difficulty in increasing the output of the processing plants at Nouadhibou substantially. Once the fish supplies in its waters are properly exploited, Mauritania will be able to compete freely with other countries in working the rich supplies in the East Central Atlantic outside Mauritanian waters, for which Nouadhibou offers considerable advantages as a base of operations.

D. Capacity of Existing Facilities

109. Mauritania has substantial supplies of fish available and a constantly expanding export market; the constraint restricting the expansion of its fish processing industry is thus the inadequacy of the present facilities, in the port and not in the processing plants.

Capacity of fish processing plants at Nouadhibou[/1]

	Tons, fresh weight equivalent assuming 250 working days per year	
	1970 (actual)	1973 (estimates)
Frozen fish	48,000	55,500-77,500[/2]
Canned tuna	-	5,000
Salt or dried fish	48,000	48,000
Fishmeal and fish oil	110,000-222,500[/3]	222,500
Total	206,000-318,500[/3]	331-353,000

/1 For details see Annex 10.
/2 Depending on the proportions of whole fish and fillets included.
/3 Average capacity - maximum capacity.

110. With the opening of the IMAPEC plant in the summer of 1970, the installed capacity at Nouadhibou rose by almost 50 percent, from 223,000 tons in 1969 to 318,000 tons the following year. In relation to capacity in ac-

tual use the increase is more striking still, for during 1969 some 70 percent of the available capacity was left lying idle (SOMIP and SOMAUPECO), and the remainder was very much underused. During 1970, however, all the plants in the area were in operation, although some of them only at a very low proportion of capacity. Between 1970 and 1973 total capacity is expected to continue to rise, although more slowly, with the opening of the IMAPEC canning factory in 1971, improvements in the SOFRIMA cold storage plant, and more especially with the increasing substitution of fillets for whole fish in the export trade. The figures for capacity given above have been conservatively based on the assumption of 250 working days per year; if the freezing plants, the canneries and the fishmeal mill are worked for 300 days per year, total capacity would be 373,000 tons in 1970 and between 388,000 and 414,000 tons in 1973.

111. It is difficult to work out the capacity of the equipment involved in discharging the catch. As has been mentioned above, the fish quay at Nouadhibou was built to handle a maximum of 20,000 tons of fish per year. In practice, the quay is used for discharging all the fish for freezing and canning, together with the green fish for drying by IMAPEC and the fish used for fishmeal at La Guerra. The green fish for other drying plants (SIGP and EGA) is landed on those companies' private pontoons, and hence does not pass through the port installations proper. The two firms running fishmeal factories each have pumping equipment away from the wharf area big enough to deal with the largest amounts that they are likely to require. The discharge capacity of the area may thus be tabulated as under:

fish quay	20,000 tons per year
private pontoons	30,000 tons per year, approx.
pumping equipment	212,500 tons per year, approx.
Total discharge capacity	262,500 tons.

112. This capacity is too small to meet the needs of the existing plants; worse still, some of even this capacity is unusable, because the installations for supplying fishing vessels with water, fuel oil, ice, and other supplies, are too small to allow Nouadhibou to accommodate the number of vessels that would be required to land 262,500 tons of fish per year. Assuming, as recent experience shows to be the case, that vessels fishing for the freezing and drying plants land 250 tons per year, and that the larger vessels supplying the fishmeal factories land on average 5,000 tons per year, between 450 and 500 vessels would be required to keep all the existing plants running at full capacity. Even to keep the present discharge capacity of the port fully occupied would need between 250 and 300 vessels. Unfortunately, the present capacity of the ships' supply facilities and the maintenance shops is less than 80 vessels per year.

Number of Vessels needed

	To keep the processing plants at full capacity in 1970--assuming 250 working days per year		To keep the discharge facilities at Nouadhibou fully occupied	
	Tons	Number of vessels	Tons	Number of vessels
Freezers, canneries IMAPEC drying plant, La Guerra fishmeal plant	76,000	289	20,000	80
Other salt dried fish	30,000	120	30,000	120
Fishmeal at Nouadhibou	212,500	50	212,500	50
Total	318,500	459	262,500	250

113. Naturally, the limited capacity of the ships' supply facilities and the repair shops is not an absolute bar to the expansion of the fishing industry at Nouadhibou. The operators can always have their vessels careened and repaired at Las Palmas or Dakar, or carry out minor repairs with the help of a mother ship, as the Dutch operators currently do. But it is certain that the lack of facilities is a very great handicap for the fishing industry, and that it is having a particularly harmful effect on surface fishing, which is the source of supply for the fishmeal factories. The very low price for fresh fish for conversion into fishmeal (CFAF 4,000 or $14.40 per ton), and the relatively small margin of profit for the operators means that the vessels must be used with the utmost possible efficiency, so that there is no time for trips to Las Palmas or Dakar. It is therefore to be feared that, unless the port facilities at Nouadhibou are greatly improved, it will not be possible to attract a large enough number of vessels to keep the two fishmeal factories running at full capacity. In fact, without such an improvement in the facilities both in the port and in the ancillary trades, it is unlikely that the fishmeal factories will receive more than 50,000 tons of fish per year, a quantity that represents about 23 percent of their capacity.

114. The subject of the port installations has become a very live topic during 1970 because this year some 340 vessels have been fishing in Mauritanian territorial waters, 1/ and of these some 220 have been working temporarily to supply the plants at Nouadhibou. It will hardly be possible to provide maintenance for all the vessels working for the processing plants; the others will be forced to go elsewhere, thus depriving Mauritania of what would otherwise have been additional earnings. The problem will become still more acute in 1971, when the two fishmeal factories are ready to run at full capacity.

1/ For description, see Annex 9.

115. In addition to the constraints provided by the inadequacy of the fishing port, there are others caused by certain defects in the commercial port; for, on account of the inability of the fishing port to handle all the fish offered for discharging, exports of fish products are shipped through the commercial port. There the quay has a normal capacity of 70,000 tons per year and a maximum capacity of 120,000 tons per year. At the present time some 50,000 tons of imports move through the port in a normal year, excluding material for the MIFERMA projects, and a large proportion of this is taken up by salt and fuel oil for the fishing industry. Hence, the port can handle no more than 70,000 tons of export products at the very outside. However, if allowance is made for probable increases in imports both by MIFERMA in connection with its low-grade ore project and by suppliers to the fishing industry, the capacity available for general cargo will fall to between 50,000 tons and 60,000 tons per year at the most. Assuming 250 working days per year, the processing plants at Nouadhibou will be able to export 120,000 tons of fish products 1/ in 1973; even without any increase in the discharge capacity of the fishing port, exports will probably rise to over 50,000 tons per year. Any increase in the capacity of the fishing port will therefore require a corresponding increase in capacity in the commercial port.

E. Available Supplies, Markets, Port Capacity and Processing Capacity

116. The table below summarizes the effect of the various constraints described above, and shows the probable situation in 1973 on the assumption that the port facilities are not improved, or expanded.

1/ See Annex 11.

Available supplies, markets, port capacity and processing capacity

'000 tons fresh weight equivalent per year

	Supplies		Markets	Capacity		
	East Central Atlantic area	Territorial waters only	1973	Processing 1973	Port 1970	Discharging and processing 1970
1. Frozen fish						
Bottom fish	250[1]	100[1]	43-85	53-75	n.a.	21
Sardines	*	*	22-23	3	n.a.	-
Total			65-108	56-78	21	21
2. Tuna (canned)	**	0	5	5	-[2]	-
3. Salt or dried	50[1]	50[1]	22	48	30[2]	21.6
4. Fishmeal	1,150[3]	4-500[3]	virtually unlimited	222[4]	50[5]	60 [4]
Total	1,450	5-600		331-353	101	102.6

[1] Breakdown between frozen and salt dried fish estimated.
[2] An increase in landings would be possible if fewer landings were made for the freezing plants.
[3] Including unmarketable bottom fish.
[4] Including 10,000 tons for La Guerra landed at Nouadhibou.
[5] Maximum capacity in view of limitations on supplies and on maintenance of vessels.
* to be determined
** unknown

117. Two main conclusions may be drawn from this table:

a) In the short term any increase in output is bound to be limited by the inadequacy of the port facilities not only for discharging the catch for freezing, canning and producing salt dried fish--the latter passing almost entirely through the fishing port--but also by the lack of maintenance and repair installations for the vessels that would otherwise land fish for making fishmeal. Although considerable increases in output are envisaged for 1970, the present port facilities will only make it possible to expand landings to a rather limited extent, and this in turn will restrict the processing plants to less than 50 percent of their capacity.

b) The fish requirements of the plants brought into existence during the past four or five years are currently twice as great as the port can handle. But, contrary to what had been thought, the capacity of the plants is not greater than will be needed to meet potential demand, nor is it too large to be supplied from Mauritanian territorial waters. These plants could therefore work at full capacity if the port is improved and extended. In consequence, while it may reasonably be maintained that the investments in the Mauritanian fishing industry of the last few years have not been over-ambitious, they have certainly been badly distributed, since the processing plants have been expanded beyond the capacity of the port to supply them. As the port improvement projects cannot be carried through for some years at the earliest, this state of affairs is bound to hold back the development of the Mauritanian fisheries to a considerable degree.

118. The growing disequilibrium between the capacity of the processing plants and that of the port has been concealed for the past few years by the poor management of the plants and the lack of capable businessmen, leading inter alia to the collapse of the SOMAP/SOMIP/SURVIF group. The shortage of fishing vessels, and the poor use that was made of those that did exist, meant that the landings were well within the capacity of the port to handle, while the processing plants were operating far below capacity.

F. Action Needed to Ensure Efficient Operation of Existing Processing Plants

119. If the existing plants are to be supplied in a satisfactory manner and their output is to be increased in due course, two main lines of action must be taken:

a) The port must be expanded sufficiently to enable the desired number of fishing vessels to discharge their catch, and to receive proper maintenance;

b) The port must be made attractive enough to encourage foreign vessels to come and fish in the areas around Nouadhibou, and then discharge their catch regularly in the port.

120. As bottom fishing is very profitable in this field, it is more important to improve the port facilities than to make the place attractive to foreigners. But for surface fishing, where the profit margins are very small, there is a real danger that there will be too few fishing vessels to guarantee a permanent flow of fish to the processing plants unless the amenities of Nouadhibou are improved. This would mean reducing the cost of the services provided by the port itself and by the ancillary trades to the level charged elsewhere, and making the turnround time comparable to that in rival ports. In addition, better accommodation and entertainment must be provided for the crews and their families. Hence, over and above the equipment, attention will have to be given: a) to the question of Customs

arrangements, which has hitherto been a stumbling block in the way of rapid maintenance and repairs; and b) to improving the arrangements for supplying fishing vessels with ice and fuel oil, and to reducing the price of these items.

121. Capacity of port installations required to provide full capacity operation of processing plants in 1973

(assuming 250 working days per year)

	Existing capacity (1970)	Capacity needed in 1973
A. Discharge capacity ('000 tons)		
Fishing quay /1	21	89-111
Pumping station for fishmeal plants	50 /2	212
Private pontoons - salt dried fish	30	30
Total	101	331-353
B. Ship-handling capacity		
Supplies, careenage, maintenance (number of ships)	maximum 80	450-500
C. Capacity for exporting finished products ('000 tons)	50-60	120

/1 Landings of fish for freezing, for drying and canning (IMAPEC), and for fishmeal at La Guerra.

/2 Theoretical figure. Actual figure is lower due to lack of ship-handling capacity. (Presently workship-load outside the Mauritanian waters.)

If it is to be able to meet the demands imposed on it not only by the plants now in operation at Nouadhibou and La Guerra, but also by those currently being built, the port will have to be expanded considerably in three different ways, namely:

a) The discharge capacity of the fishing quay will have to be increased from 20,000 tons of fish per year to between 90,000 and 110,000 tons per year;

b) The ship-handling capacity will have to be increased from 80 fishing vessels per year for supplies, careenage, and maintenance to more than

440 per year, and both temporary and permanent accommodation for the crews will have to be provided accordingly;

c) The capacity of the commercial port will have to be raised from the present figure of 70-120,000 tons per year to 170,000-180,000 tons per year (imports 50,000-60,000 tons, exports 120,000 tons). These figures are theoretical in the sense that they have been calculated on the basis of the maximum capacity of the existing processing plants. They make no allowance for the fact that these maxima are unlikely to be reached in practice. On the other hand, the calculations have been made on the assumption that the plants will only be working 250 days per year, which is very conservative.

122. The plan of action described above is not quite the same program as part of the Second Development Plan, 1970-73, which may be summarized as follows:

1. There is to be no further investment in processing plants until all existing undertakings are working at full capacity;

2. Every effort is to be made to avoid the errors in connection with the fishing fleet that were committed at the time of the SOMAP venture. The aim is to build up a Mauritanian fishing fleet gradually, the first units being quite small. The main problem is seen to be that of finding men capable of running these undertakings, and it is thought that it will take a considerable time to train them.

3. The discharge capacity of the fishing port at Nouadhibou is to be increased in stages, the first of which should be from the present figure of 25,000 tons per year to 55,000 tons per year. It is envisaged that this project will require three years of preliminary work, and will therefore only begin to have any real effect at the start of the following Plan in 1974.

123. The mission is in full agreement with the first point. However, so far as the establishment of a local fishing fleet is concerned, it should be pointed out that the creation of small units, whether cooperative or not, will not make it possible to meet the needs of the processing plants; nor will it enable the Mauritanian operators to compete in the price field with up-to-date foreign fishing fleets. Both in the short term and in the longer run the Government will therefore have to work hand in hand with the foreign fleets. It can do this by introducing tax and Customs arrangements that take account of the circumstances of the fishing industry, and by providing proper handling facilities for the vessels and accommodation for their crews. But the most important comment that the mission wishes to make on the Plan has to do with the expansion of the fishing port. For the figure of 55,000 tons mentioned in the Plan is clearly too small; it is almost certain that nearly 100,000 tons of fish will be landed in 1970 alone--80 percent of it through the fishing port, and the landings are bound to increase steadily

in order merely to keep pace with the requirements of the existing plants. It will therefore be necessary to start now planning for a port with far greater capacity than seems to be envisaged in the Plan. This problem is discussed in detail in the following paragraphs.

1. The fishing port

124. The BCEOM Survey (financed by French aid--FAC) is already out of date, so far as Stages 1 and 2 are concerned; in Stage 3 it envisaged that 56,000 tons of fish excluding that for fishmeal and salt dried products, will be landed in 1975 and 93,200 tons in 1985. It is only this last figure that should now be taken into consideration; hence, the fish quays would need to be lengthened to 1,240 meters, which would include provision for the needs of the fishmeal plants. The authors of the same survey calculated the amount of space required for maintenance and tying up on the basis of a fleet of 80 vessels permanently attached to Nouadhibou, and an indeterminate number of foreign vessels calling at the port. This part of the survey will have to be completely rewritten, as there are already 100 vessels permanently attached to Nouadhibou and more than 200 "callers", and the number will have to be augmented considerably if the processing plants are to work at a reasonable level of capacity. Apart from the need for a more accurate assessment of the length of quay required for maintenance and laying up, the BCEOM master plan for the port seems quite satisfactory. It contains the following elements:

- Extension of the EDF quay by	265 meters
- Tying-up quay along the breakwater	290 meters
- Space along the two sides of the mole which should be widened from 60 meters to 100 meters and shortened by 35 meters	550 meters
- End of mole	100 meters
	1,205 meters

This program would provide 1,490 meters of usable quay (285 meters now in use plus the 1,205 meters to be built). The width of the inner basin should be increased from 100 meters to 150 meters to facilitate ship movements between the quay and the mole. This area could also be used for taking on supplies, as could the 55 meters of quay between the mole and the slips. It should be possible to drive vehicles along the breakwater, something for which provision has not been made; the breakwater should thus be at least 7 meters wide, so that motor vehicles can use it safely. The cost of these facilities may be put at CFAF 2.2 billion in very round figures.

125. Improvements must also be made in the arrangements for supplying fuel oil and water alongside, and in the maintenance facilities. A water system for the fishing port will have to be constructed with part of the

loan of CFAF 256 million made available to the Mauritanian Government for laying on water in Nouadhibou by the CCCE, and sufficient electric power will have to be provided as part of the electrical expansion scheme for Nouadhibou, for which the Mauritanian Government is to find CFAF 276 million. The BCEOM survey envisaged the construction of one 1,000-ton slip and one 250-ton slip to improve the maintenance arrangements. The capacity of the 250-ton slip ought to be raised to 300 tons; but, more important, additional berths should be provided so that several vessels may be overhauled simultaneously. We believe that two berths for the 1,000-ton slip and four for the 300-ton slip would be appropriate.

126. In order to avoid delaying the expansion of the port, in December 1969 the Mauritanian authorities submitted a request to UNDP in connection with the establishment of a workshop for general engineering, ship repair and maintenance at an overall cost of US$669,000 (approximately CFAF 180 million). This shop would be run by the port or by a firm approved by the port authority. We very greatly prefer this second arrangement. Although this workshop is planned to start operating only when the new port is completed, the urgent need for proper maintenance facilities would justify its establishment even before the port works are built.

127. As part of the improvement scheme it will be necessary to extend, and perhaps to revamp entirely, the cold storage equipment in the port warehouse area. The improvements required include:

1. The installation of ice-making equipment capable of overcoming the shortfall estimated at 30,000 tons per year by 1973. If an additional ice-making machine with a capacity of 100 tons per day were installed in the port warehouse area, the SOMAUPECO cold storage plant could be converted into a brine freezing plant, and ice-making activities could be centralized near the quay;

2. Arrangements to deliver ice either by chute or by conveyor belt to four outlets at a time, instead of to one as at present;

3. An increase in the freezing capacity of the cold storage area from 60 tons per day to 75 tons per day in order to have a reasonable margin of safety;

4. Repair of part of the floor surface and of the insulation;

5. A reorganization of the storage layout, perhaps including the construction of new cold storage rooms at -20 deg. C. (0 deg. F) in the fish market, together with an improvement in the traffic pattern (fork-lift trucks, movement of fish and finished products). All this work together is estimated to cost about CFAF 150 million.

128. Finally, it is hardly possible to overstress the lack of facilities for ships' crews at Nouadhibou. Men who spend most of their time at sea must have facilities for rest and recreation when they come ashore to land their catch, and accommodations for their families. Neither of these is available at Nouadhibou, and it is clear that this omission is a main constraint to further development of port operations.

2. The commercial port

129. The authors of the BCEOM survey assume that frozen products would take up hardly any capacity on the commercial wharf because they are shipped by refrigerated coasters that tie up at the fish quays. This assumption does not seem very realistic, for even when the extension is completed, the fish quay will be fully occupied with discharging the catches from fishing vessels. Furthermore, the modern refrigerated vessels that call at Nouadhibou often have a draft of 8.5 meters or 9.0 meters, while the water around the quay is no more than 5 meters or 6 meters deep, depending on the exact spot. The lack of depth may also cause problems in the commercial port, except for the 8-meter area on the east side of the wharf.

130. It thus seems desirable to start forthwith on a survey of the cost and the technical problems involved in dredging the commercial port and the entrance channel to a depth of 10 meters, to enable it to handle all fish product shipments, except for the possible trade in salt dried fish between Nouadhibou and Nouakchott for domestic consumption.

In this respect, it would seem worthwhile considering improvements to the wharf at Nouakchott in conjunction with those in the commercial port at Nouadhibou. For it may well turn out that the cheapest solution for Mauritania would be to establish a real commercial port at Nouadhibou to act as a distribution point for the whole country. The rest of the country could be reached from Nouadhibou by road (once the Nouadhibou-Akjoujt road is improved), by rail from Nouadhibou to F'Derik and thence by truck to the whole northeast, by sea from Nouadhibou to Nouakchott and thence by truck along the river valley to the southeast, or directly by boat from Nouadhibou to Rosso, Boghe and Kaedi up the river.

131. In any event, the present wharf at Nouadhibou, which is large enough to handle a maximum of 120,000 tons per year, will be inadequate for the traffic forecast for 1973 (100,000-120,000 tons of fish products outwards plus 50,000-60,000 tons of miscellaneous cargo inwards) and at the very least studies should be undertaken to decide how the present facilities can be modified to handle the increased volume of traffic.

3. Financial problems

132. Excluding the cost of the investments required in the commercial port, for which no figures are yet available, the total outlays on essential new port works may be tabulated as under:

extension of fishing port	CFAF 2,200 million
slips	500 million
cold storage improvements	150 million
accommodation for crews and families	2,000 million
	CFAF 4,850 million

133. The problem of raising this rather considerable amount of money is not within the purview of this report. Nevertheless, there is no reason why the port of Nouadhibou should not become self-supporting and well able to pay off the charges on any debt that may be contracted for expansion purposes, once it is large enough and agreeable enough to attract roughly the number of vessels that we have mentioned. Nevertheless, if the port is to be self-supporting even then, the following four conditions will have to be met:

1. No vessel shall be allowed to moor anywhere along this part of the coast except in the port;

2. No operator shall be allowed to discharge his catch or take on supplies except in the port or, provisionally, at the quays of the fish-drying plants, under the supervision of a port officer;

3. An autonomous Harbor Board with appropriate legal and financial status will have to be set up to be solely responsible for all receipts and expenditures for the port as a whole;

4. A duty-free zone will have to be established for all supplies to be consumed at sea, together with fishing tackle and gear, including spare parts for engines, generators, etc.

In the short run such an arrangement would mean the loss of Customs duties amounting to some CFAF 300 million to CFAF 400 million per year, but it would be more than offset by the additional duties paid by the plant operators, which should rise from the present figure of CFAF 164 million to somewhere in the neighborhood of CFAF 1,000 million, in line with the expansion of their activities.

134. The other investments mentioned should also be sufficiently profitable to pay off any debt charges and repay any loans, provided that these are contracted on a long-term basis. This means that the port expansion, which alone will enable the fish product plants to function efficiently, can be financed without creating a burden on the central government budget, which is certainly in no position to carry such an outlay.

4. Scientific research and fish breeding

135. In view of the scale of the undertaking involved in improving the port at Nouadhibou, one major step that should be taken urgently is a thorough biological survey of both bottom fish and surface fish in Mauritanian waters, to be followed by recommendations for their protection. The Fisheries Laboratory (Laboratoire des Peches) would be unable to carry through such a project unaided, because the staff, funds and equipment needed are more than Mauritania can supply. The project would have to be placed in the hands of an international group of scientists specifically recruited for this purpose, with access to laboratories, research institutes and libraries, and at least one vessel that could be used simultaneously by several scientists pursuing work in different fields. The cost of such a group would certainly exceed CFAF 250 million per year.

136. The present Fisheries Laboratory should continue to play an important role in connection with the technology both of fishing and of fish products. If the staff is gradually increased, it should be in a position to disseminate information on new techniques in fishing, storage and processing. In addition, it will have the important tasks of insuring that fish products are exported under properly hygienic conditions and of offering advice to the operators of processing plants on improvements in their field. If it is to perform all these functions, the Laboratory will require, in addition to better accommodation:

- one expert in the exploitation of bottom fish;
- one expert in the exploitation of surface fish;
- one expert in the supervision and inspection of fish products;
- one junior fish statistician.

Funds for this staff might be found, at least in part, by UNDP.

137. The Baie du Levrier is a breeding ground for the meagre, the raw material most commonly used in the production of salt dried fish in the Canary Islands and in Mauritania. It would be useful if the Fisheries Laboratory were to take the studies already made of the meagre as a starting point, and to develop methods for artificial fertilization and breeding, as the rapid rate of growth of the species makes it commercially very attractive. An FAO expert recruited under the Aid Program (EPTA) could carry out a project of this sort, if the funds needed for building the necessary tanks and aquaria, amounting to about CFAF 30 million in all, could be found elsewhere.

G. Macroeconomic Data and Forecasts

138. Value added by fisheries and the fishing industry

CFAF Millions

	1960	1964	1969
1. Sea Fisheries			
Small-scale fishing	18	27.4	96.7
Large-scale fishing	92	188.1	577.5
Fish processing	138	222.8	543.2
Total	248	438.3	1,217.4
2. Fresh water Fisheries			
Small-scale fishing	307	334.9	300.0
3. Total	555	773.2	1,517.4

The increase in the demand for fresh sea fish products in the cities and mining areas and the establishment of several freezing plants at Nouadhibou have together raised the growth rate in the fisheries sector considerably in the past five years, even when compared with the very satisfactory figure for the years 1960-63. For 1964-69 the average annual increase was 22.5 percent, against 15.3 percent for 1960-63. Thus, despite the SOMAP/SOMIP disaster, sea fishing has increased very rapidly since 1960; one point of distinction is that between 1964 and 1969 small-scale fishing spread more rapidly than large-scale operations, whereas the situation was the opposite in the first part of the decade.

139. One reason for this high growth rate is undoubtedly the very small size of the sea fish catch as late as 1960. This in turn means that even after the rapid growth of the sixties, as late as 1969 the value added was still not very great. In fact, in 1960 the value added by sea fishing, including processing, was no more than CFAF 1 million, representing less than 1.5 percent of GNP. While it is true that the value added by sea fishing doubled from 1.5 percent of GNP in 1964 to 3 percent in 1969, compared to the volume of fish available and the potential markets the figure is still very low.

140. Until 1964/65 fresh water fishing was more important than sea fishing, but the very slow increase of no more than 2.2 percent between 1960 and 1964, and stagnation since then, have led to a reversal of the situation. However, the very low value of the output in 1969 was due to a fall in prices

and not to a physical reduction in the catch. One important difference between sea fishing and fresh water fishing is that the Senegal River is being fished almost to capacity, so that no very great expansion in output can be expected. The relative importance of fresh water fishing will therefore continue to decline.

141. As has already been shown very clearly, the development of sea fishing is mainly dependent on an expansion of the port facilities at Nouadhibou. The following table provides two forecasts for sea fish output in 1973, first on the assumption that the port expansion is completed by that time, and then on the assumption that it is not. Even though it has been assumed in the more favorable case that fishmeal output will only be equivalent to 50 percent of the capacity of the existing plants -- on the grounds that managements have decided only to increase output gradually and to avoid reaching full capacity in the early years -- the difference between the two forecasts is as much as 250 percent. A substantial proportion of the increase in value added will in fact accrue to foreign seamen, and thus have little influence on the Mauritanian standard of living. Nevertheless, the impact on the country's economy will still be substantial. Furthermore, it is to be hoped that, unlike the mining industry, the fishing industry will have secondary repercussions on the economy, and that it will in particular lead to increased activity in ship maintenance and repairing, making those two sectors fairly important in the future. While without the port expansion the annual growth rate for sea fishing may amount to 26 percent from 1969 to 1973, and the rate for fisheries as a whole to 22 percent in the same period -- the increase taking place mostly in 1969-70 and very little thereafter -- if the port work is completed by 1973, the figures could be 60 percent and 53 percent per year respectively.

EFFECT OF EXPANDING PORT FACILITIES (AT NOUADHIBOU) ON OUTPUT AND VALUE ADDED IN THE FISHING INDUSTRY BY 1973

Quantities: Tons
Values: CFAF millions

	Actual				Estimates for 1973			
	1964		1969		Without new port facilities		With new port facilities	
	Quantities	Values	Quantities	Values	Quantities[2]	Values	Quantities	Values
Sea Fishing								
Small-scale fishing								
Output	1,300[1]	34.2	2,750	120.9	4,200	217.0	4,200	217.0
Value added	-	27.4		96.7		173.6		173.6
Large-scale fishing								
Output	11,843	268.7	27,830	825.0	112,020	1,989.6	240,420	5,496.6
Value added	-	188.1	-	577.5		1,392.7		3,847.6
Total: Output	13,143	302.9		945.9		2,206.6		5,713.6
Value added		215.5		674.2		1,566.3		4,021.2
Processing Industries								
Value added:								
Small-scale	820	36.9	1,610	89.1	2,180	103.4	2,180	103.4
Large-scale	11,277	185.9	27,830	454.1	112,020	1,378.5	240,420	3,786.4
Total	11,912	222.8	29,440	543.2	114,200	1,481.9	242,600	3,889.8
Total: Sea Fishing								
Value added		438.3		1,217.4		3,048.2		7,911.0
Total: Fresh water fishing								
Output	13,000	418.6	15,000	375.0	15,000	450.0	15,000	450.0
Value added		334.9		300.0		360.0		360.0
Fisheries Sector: Total Value Added		773.2		1,517.4		3,408.2		8,271.0

1/ After correction of the underestimated statistics
2/ With workship boat in 1970

PART TWO: RIVER AND LAKE FISHING

142. Fresh water fishing, mainly in the Senegal River, but also in the inland lakes, is an important activity for the people living along the Senegal valley, yielding between 13 percent and 15 percent of their income. There is however so little information that no detailed report can be made. There is in any event little chance that river and lake fishing can be expanded; the available resources are already very heavily used by both the Mauritanian and the Senegalese inhabitants of the valley, who have the same fishing rights throughout its whole length.

A. Recent Developments and Present Situation

143. River and lake fishing come under the aegis of the Department of Water Resources and Forests, but lack of funds has made the Department virtually inactive in this field.

144. The volume of fish landed on the Mauritanian bank of the river has been estimated at 13,000 tons for 1964 and 15,000 tons for 1969. The value of the catch was about CFAF 418.6 million in 1964 (an average of CFAF 32.20 per kg.) and CFAF 375 million in 1969 (an average of CFAF 25 per kg., an unusually low figure brought about by the fall in purchasing power caused by the drought). Until 1964-65, when large-scale sea fishing started to increase, fresh water fishing was the more important of the two, and it still plays the major role in feeding the inland communities. Imports and exports of fresh water fish appear to be negligible. Between 30,000 and 40,000 people — 10,000 sedentary fishermen, 5,000 casual fishermen, and their families -- are involved in fresh water fishing in various ways on the Mauritanian side of the Senegal River. Investment in canoes (pirogues) and equipment is estimated at CFAF 120 million.

145. Fishing is normally carried on at high water and low water on the river. The Senegalese authorities have been compelled to take action to organize or restrict fishing activities along the river in order to offset the recently detected fall in the fish population. It is desirable for the Mauritanian authorities to take similar action.

146. The average consumption of fresh water fish in Mauritania rose from 12.60 kg. per head in 1964 to 13.15 kg. per head in 1969, an increase of no more than 4 percent. Nearly all this fish is consumed along the banks of the river in the more densely populated region south of the line Nouakchott-Kiffa. This region can be divided into two, viz. the area along the river and inland to a distance of about 50 km., where the fish is eaten fresh; and the hinterland, where fresh water fish is usually eaten dried. It appears that on average 80 percent of the catch (12,000 tons) is eaten fresh near the river -- 7,800 tons is eaten by the fishermen and 4,200 tons is sold — while 20 percent is sold in dried form, representing 3,000 tons of catch

or 1,000 tons of dried fish. We believe that over 80 percent of the dried fish is consumed in the hinterland, 15 percent along the river banks, and only 5 percent in the rest of the country.

B. Prospects for Expansion and Action Required

147. With the settled population, the main consumers of fresh water fish, increasing at the rate of 1.8 percent per year, and consumption rising by 4 percent per year between 1964 and 1969, there should be an expanding market for fresh water fish. Unfortunately, while the fish yield fluctuates very greatly from year to year, it does not seem likely to exceed the figure of 15,000 tons reached during the past few years.

148. The Second Development Plan, 1970-73, contains a number of measures to expand fresh water fishing. These include surveys and fish counts, the establishment of fishing cooperatives, the introduction of a system of credit, the training of fishermen, an overhaul of the existing regulations, and harmonization with the Senegalese arrangements. The intention is to establish a special unit within the Department of Water Resources and Forests or the Ministry of Fisheries and Shipping to administer this program. The program itself seems very ambitious: in our view, any action in this field ought to start with a one-year or two-year survey covering the number of fishermen, the size of the catch, the methods used for storage and sales techniques. This survey, which could be carried out by a special Fresh Water Fish Unit, would provide the basic data for any future program. The annual cost of the Unit would be in the neighborhood of CFAF 20 million.

149. Meanwhile, the increase in demand and the likelihood that production will remain stationary is likely to lead to a continuing shortage of fish in the Senegal valley. This gap will have to be filled by dried or salt fish from Nouadhibou, a substitution that may well cause problems in connection with both the acceptability of the product and with transportation. While the problem of acceptability will be overcome in due course, some sort of boat service may have to be established to carry the dried fish from Nouadhibou to Nouakchott, and later to Rosso and other river ports.

ANNEX 1

TERRITORIAL WATERS

1970 Definition

A. Extent

1. The Law of January 21, 1967, approved under the First Fisheries Development Plan, extended the territorial waters of Mauritania to the 12-mile limit. North of Cape Timiris the distance is measured from a base line running directly from Cape Timiris to Cape Blanc, thus taking in most of the Arguin Banks. The Law, which was enacted without consultation with other parties, is not in conformity with the Geneva Convention of 1958, the accepted authority on such matters.

2. The reasons for the Mauritanian action are set out in the preamble to the legislation as follows:

- If it is to expand normally, the Mauritanian fishing fleet must be able to operate freely in Mauritanian waters without competition from the fleets of industrialized countries. In order to make this possible, it has been necessary to do away with the former so-called "adjacent waters", where surveillance was hardly effective in practice.

- The establishment of a base line running from Cape Timiris to Cape Blanc is justified by the need to protect the whole of the Arguin Banks (rather empirically considered to be an important spawning ground).

- The authorities point out that the Geneva Convention of 1958 grants authority to establish certain base lines if they are required to protect the economic interests of the area in question.

From Cape Timiris to the southern border of the country, the 12-mile limit runs from the low water mark.

3. In addition there are several restrictions, as follows:

- Within the 3-mile limit fishing is prohibited entirely, even for Mauritanian nationals, except for line or seine fishing from vessels not exceeding 12 meters overall.

- North of Cape Timiris

a) Between the 3-mile limit and the base line, and in the Baie du Levrier, fishing is restricted to Mauritanian and foreign vessels whose operators have contracts to deliver their catch under license to Nouakchott and take on fuel in that port, provided that their vessels do not exceed 22 meters overall.

b) Between the base line and the 12-mile limit, drawn therefrom, foreign vessels of any size may fish on payment of an annual fee to the Mauritanian Government. This fee is calculated on the basis of the vessels' tonnage.

- South of Cape Timiris

The following vessels may fish between the 3-mile and 12-mile limits:

a) Mauritanian and foreign vessels whose operators have contracts to deliver their catch under license to Nouakchott;

b) Foreign vessels of any type, on payment of an annual fee to the Mauritanian Government. This fee is calculated on the basis of the vessels' tonnage.

Finally, the Order of February 3, 1967 placed a complete ban on trawling in the Baie du Levrier.

B. Surveillance

4. In 1967, the task of surveillance in Mauritania's territorial waters, formerly carried out by the Fisheries Department, was handed over to the Mauritanian Navy, which has the following craft available for the purpose:

- 2 17-meter motor vessels, each valued at CFAF 35 million;
- 2 32-meter motor vessels, each valued at CFAF 145 million and capable of making 30 knots.

Article 10.4.4 of the Merchant Fleet Code lays down a scale of fines for various offenses.

ANNEX 2

COOPERATION AGREEMENTS AND FISHING RIGHTS AGREEMENTS

A. Cooperation Agreements

1. Franco-Mauritanian Agreement. This agreement was signed directly after the attainment of independence by Mauritania on July 19, 1961. Article 4 lays down that fishing vessels of the countries concerned shall enjoy the same treatment in the ports, territorial waters and protected waters of the partner country as the domestic vessels of that country. The Article also sets out the terms on which vessels may be said to be carrying the flags of the two countries.

2. Hispano- Mauritanian Agreement of February 14, 1964

a) Spain undertakes to arrange for the construction and operation on Mauritanian soil of a factory with the following capacity:

Salt dried fish	--	6,000 tons per year
Canned fish	--	3,500 tons per year
Fishmeal	--	100 tons of fresh fish per day equivalent, making 25,000 tons of fishmeal per year, assuming 250 working days per year.

The latest date for entry into force of this provision is February 14, 1966, with derogation if the freezing plants in Mauritania are not in working order by that time;

b) Spain also undertakes to register between 20 and 50 fishing vessels in Mauritania and to land their catches in Mauritanian ports. Initially these vessels are to comprise:

- 24 vessels (launches, sardiners, and trawlers) of between 12 and 16 meters;

- 4 33-meter trawlers equipped for working in pairs.

c) A fee of $10 per gross ton per year shall be payable by Spanish operators fishing in Mauritanian waters. (This fee was paid on 171 vessels in 1969). The agreement also provides that Spain shall assist in training Mauritanian crews;

d) in return, the Mauritanian Government undertakes to:

- allow Spanish fishermen to operate in Mauritanian waters on the same terms as Mauritanian fishermen, after paying the above-mentioned license fee;

- grant Spanish firms investing under the program most favored nation treatment in respect of taxation, Customs and other regulations, free access to appropriate areas of land, and the right to transfer any profits freely to Spain;

- inform the Spanish Government of any other agreement it may conclude in connection with fisheries or fish products.

In view of the need for adequate freezing equipment, the Spanish authorities have granted permission for the installation of the following additional plants:

	Capacity
Freezing plant :	60 tons per day
Storage at -20 deg. C:	1,900 tons
Ice-making :	85 tons per day.

B. Fishing Rights Agreements

1. Greco-Mauritanian Agreement of July 28, 1966

Permits may be granted to the operators of Greek vessels (other than the operators of factory ships and floating freezing plants) to fish in Mauritanian waters on payment of an annual fee of $15 per gross ton per year. The other terms of the agreement are:

- At least 25 percent of the catch must be sold locally;

- The remainder of the catch must be processed locally or stored at Port Etienne;

- 25 percent of the crew must be Mauritanians undergoing training.

2. Greco-Mauritanian Agreement of June 20, 1969

The main terms of this agreement are:

a) Payment of CFAF 7 per kg. on an assumed minimum catch of 11,000 tons per year (i.e. CFAF 77 million per year) for 25 trawlers, but the number of trawlers may be increased.

In 1970 there were in fact 29 Greek trawlers operating under this agreement, made up as follows:

Under 200 gross tons	3
200 to 500 gross tons	8
500 to 700 gross tons	8
700 to 1200 gross tons	10

In terms of size these vessels consisted of:

7 from 45 to 50 meters

7 from 50 to 60 meters

15 from 65 to 70 meters

b) Each vessel must have at least three Mauritanian crew members;

c) The Greek Government shall grant an import license for 3,000 tons of Mauritanian frozen fish;

d) The agreement shall run for five years, but permits are annual and shall be renewable annually in consequence.

3. Italo-Mauritanian Agreement of June 3, 1969

The main terms of this agreement are:

a) Payment of $US 15 per gross ton per year for a minimum of 30 vessels;

b) The number of vessels permitted under the agreement shall be between 60 and 90, and shall be fixed annually by the Mauritanian Government;

c) Each vessel must have at least three Mauritanian crew members;

d) The agreement shall run for three years, but each permit shall be renewed annually.

In 1969 fees amounting to CFAF 130 million were paid on 18,000 gross tons. So far in 1970 permits have only been requested for 21 vessels, and this will require renegotiation of the agreement.

The 21 vessels comprise:

10 from 400 to 600 tons

6 from 600 to 800 tons

5 from 800 to 1500 tons, making a total of 14,000 tons.

4. Agreement with the Panamanian firm Pesquerias de Panama S.A. dated April 3, 1967 and since extended.

This agreement originally provided for the payment of CFAF 3 per kg., but the figure has since been raised to CFAF 7 per kg. The assumed minimum catch is 16,000 tons (i.e. a payment of CFAF 112 million) by an assumed 35 vessels. In 1969 and 1970 the vessels in operation consisted of:

1 vessel of 200 tons and 300 meters overall

8 vessels of 350 tons and 40/42 meters overall

8 vessels of 400 tons and 42/45 meters overall

11 vessels of 450 tons and 50/55 meters overall

6 vessels of 600 to 650 tons and 60/65 meters overall

34

5. Agreement of March 1970 with certain Japanese fishing groups

The agreement shall run for one year from May 1, 1970.

It provides for the payment of CFAF 7,000 per gross ton on 19,640 gross tons (i.e. a payment of CFAF 137.5 million). In return the Japanese groups involved undertake to purchase a certain volume of frozen fish products from the Mauritanian fishing industry at prices to be agreed.

ANNEX 3

MAURITANIAN FISHING CORPORATION (SOMAP)
SOCIETE MAURITANIENNE D'ARMEMENT A LA PECHE

1. In 1965 the Government of Mauritania decided to establish a mixed corporation, the Mauritanian Fishing Corporation (SOMAP), to purchase a fleet of fishing vessels which would supply the local industry with fish. French assistance for this purpose was granted in February 1966. The fleet was to consist of:

a) Six stern trawlers to be built by the SICCNA yards in St. Malo with the following characteristics: 33.25 meters overall; 810 h.p.; 280 tons; hold space: 163 cu. meters; freezing capacity: 5 tons per day; speed: 11.5 knots; cost: CFAF 100 million per vessel. Two of these vessels reached Port Etienne in January 1967, the remaining four during the same year.

b) Four sardiners to be built by the SOCAMI yards at Camaret. These vessels were to be 21 meters overall, have engines of 360 h.p., a speed of 12 knots, 60 cu. meters of refrigerated hold space and a cost of CFAF 50.5 million each. Only three were delivered, the contract on the fourth having been cancelled.

c) Two trawler-freezers to be built by the Belnes yards in the Netherlands for the Dreyfus Co. These were sold to SOMAP before completion. The vessels were delivered in October 1966 and cost CFAF 266 million each. They were 52 meters overall, grossed 620 tons, had engines of 1,350 h.p., a speed of 14 knots, a crew of 25, a hold capacity of 26 cu. meters (100 tons frozen, 200 tons refrigerated). The vessels were called HOHD and TIRIS-ZEMMOUR.

d) Two refrigerated cargo vessels to be built in the Netherlands at a cost of CFAF 451 million each. They were to be 82.70 meters overall, have engines of 2,500 h.p., gross 1,650 tons with a capacity of 100 tons of refrigerated space and 1,200 tons of fish frozen at -30 deg. C. These vessels were delivered at the end of 1967.

2. In all, the acquisition of these vessels involved the following outlay:

SICCNA trawlers	CFAF 600 million
SOCAMI sardiners	202
Dutch trawlers	452
Cargo vessels	916
	CFAF 2,170 million

To these figures must be added preparatory costs, interest on supplier's credit, the cost of fishing equipment, and shore investments, which amounted to CFAF 310 million, making a total of CFAF 2,480 million by January 1, 1968. A French businessman was put in charge of the whole operation.

3. Funds were provided as under:

		CFAF million	
CAPITAL	Public		
	Budget	30	
	French Cooperation grant	50	
	Mauritanian Development Bank	20	
	CCCE loan to Government	120	
		220	
	Private		
	CCCE loan to operator	105	
	Investment by operator and others	75	
		180	
			400.0
LOANS			
	French Cooperation loan	140	
	French Suppliers' Credit		
	SICCNA	360	
	SOCAMI	161.6	
	Netherlands' Credit (100 percent)		
	Trawlers	452	
	Cargo vessels	916	
	Cargo vessels		
Total			2,029.6
	Other private funds		42.0
			2,471.6

4. The difficulties of operating these vessels soon became clear and the catch remained very small (122 tons in 1966, 1,312 tons in 1967, 596 tons in 1968). The corporation officially ceased operating on January 31, 1969 and started to sell its vessels. The only craft still remaining in the possession of SOMAP are:

2 Dutch trawlers

3 SOCAMI sardiners

but they are all laid up.

A maintenance staff consisting of ony European chief engineer and 10 Mauritanian seamen has been retained.

5. The finances of the operation may be summarized as under:

Jan. 1, 1967	deficit CFAF 18 million without depreciation
June 30, 1967	deficit CFAF 177 million without depreciation
Jan. 1, 1968	deficit CFAF 367 million without depreciation
Jan. 1, 1969	deficit CFAF 1,122 million, including depreciation for 1968 only
July 1, 1969	deficit CFAF 2,095 million.

6. On July 1, 1969 the debit side of the company's balance sheet was as follows:

		CFAF millions
- Shortfall on subsidies and dues for 1966/67/68/69 (payments were expected to have been CFAF 595 million in 1967 and CFAF 370 million in 1968)		388
- Loans		
French Aid and Cooperation Fund (FAC)	140	
Central Economic Cooperation Fund (CCCE)	120	
Charges		
French Cooperation (FAC)	34	
CCCE	19	
Increase in capital	50	
Improvements to vessels	30	
		393
- Government contribution to cover Development Bank loss (58 percent of CFAF 20 million)		12
- Government guarantee and commitments		
Losses by SOMAP	2,095	
Commitments to SOMIP by SOMAP	299	
Adjustment of debts to Netherlands (devaluation)	165	
Misc. construction	170	
		2,729
- Maintenance of vessels	60	60
		3,582

7. This figure was only partly covered by the company's assets, which were made up as follows:

-	Sale of vessels		
	2 Dutch cargo ships	550	
	6 SICCMA trawlers	375.5	
	Misc. equipment	6.7	
			933.2
-	Adjustment for SOMIP		299
-	Adjustment for debts taken over by Netherlands Government		165
-	Additional fees paid by foreign vessels		150
			1,547.2 1/

8. There was therefore an uncovered debit of CFAF 2,035 million. 1/

Even deducting the debt to the Mauritanian Government (unpaid fees, etc.) the remainder still amounts to CFAF 1,900 million, which will have to be borne by the Government in its capacity of guarantor for SOMAP's commitments. In 1969 an agreement between SOMAP and its creditors led to the declaration of a moratorium backed by the Government. Under this agreement, the Government of Mauritania will have to make the following payments:

1969	264.4
1970	262.3
1971	262.4
1972	263.3
1973	244.0
1974	243.0
1975	201.7
1976	163.4
	CFAF 1,904.5 million

As the payments for 1969 were not made, the authorities will have to pay CFAF 526.7 million in 1970.

9. Under the foreign fishing rights agreements, the Government of Mauritania will be able to collect in fees a certain amount that will be available for paying off the SOMAP debt. In 1969 these fees amounted to CFAF 164.5 million, of which CFAF 59.5 million were charged against the government budget; in 1970 the fees are expected to amount to CFAF 413.5 million, of which CFAF 60 million have been provided for in the current budget. From the Mauritanian Government's standpoint, the SOMAP debt position may therefore be summarized as under:

1/ Excluding the value of five vessels still unsold. Of these, the three trawlers should be worth about CFAF 250 million. It is doubtful whether the sardiners can be sold.

	CFAF millions	
- 1969 payments to be made in 1970	264.4	
Fees	164.5	
Deficit		-99.9
- 1970 payments	262.3	
Fees	413.8	
Surplus		+151.5
Net balance over the two years		+ 51.6

In addition, one of the Dutch trawlers is expected to sell shortly for some CFAF 125 million. The Mauritanian Government seems to be managing the SOMAP debt without recourse to the ordinary budget, except for the rather small amounts represented by the fees charged against it. From 1971 onward it will be possible to reduce the number of fishing permits without disturbing the balance between fees and repayment of the SOMAP debt.

ANNEX 4

MAURITANIAN FISH PROCESSING CORPORATION (SOMIP)
SOCIETE MAURITANIENNE DES INDUSTRIES DE PECHE

1. SOMIP was established on July 12, 1966 for the purpose of building a plant to convert fish and fish waste into fishmeal and fish oil, with the assistance of the French Government. The firm was to be part of the SOMAP/SOMIP group, and to be supplied by the SOMAP vessels. The capital was CFAF 120 million, of which the Government of Mauritania subscribed CFAF 66 million and GUELFI, a French private company, CFAF 54 million. The capacity of the plant was originally to be 400 tons of raw material per day, but this was later increased to 600 tons per day, in two units of 300 tons per day each.

2. Total fixed investment amounted to CFAF 456 million instead of the planned CFAF 351 million. Actual outlay with accrued interest has now risen to CFAF 537 million, although the contract figure of around CFAF 360 million was already high for such a plant in 1967. The plant, which was built by the Compagnie des Ateliers et Forges de la Loire, was handed over in January 1968, but did not start operations until January 1970. It is intended to handle two sorts of fish, sardines caught by the seiners and selected fish from the freezer plants.

3. The plant uses the Norwegian MYRENS process, and operates on a round-the-clock basis. The raw material, chopped up if necessary, is cooked in a continuous double steam-jacketed cooker, pressed then dried in a flame-type dryer, and subsequently ground and bagged. The liquid from the press is passed through a centrifuge to extract the oil. The residual water is concentrated by the Stick Water process and returned to the dryer.

When the vessels come alongside, the fish is discharged by means of a pump with a capacity of between 2 and 3 tons per minute, depending on the height of the tide, and passed into a pipe 130 meters long connecting the wharf to the plant. The total area of the plant is 4,000 square meters. There is storage capacity for 2,500 tons of fishmeal covering an area of 2,000 sq. meters; two oil storage tanks hold 300 cu. meters each.

4. The plant consists of the following units:

- two silos for storing the raw material
- one Myrens BH 30 chopper
- an automatic feed system
- two Myrens BIK 20 cookers
- a screw conveyor
- one Myrens BP 302 press
- one Myrens SB3 disintegrator

- one Myrens CA. F.L. BT 534 direct heat dryer
- blowers for pneumatic conveyor system
- fans for conveyor system
- extraction fans
- one sieve
- one Myrens SM 16 hammer-type grinder
- one bagging-scale
- one Titan FZ 3 continuous decanter
- automatic water separators
- one Robur D 16 boiler.

The plant provides employment for six foreigners and 30 Mauritanians.

5. The delay in bringing the plant into operation, which was connected with the difficulties encountered both by SOMAP and by its manager, who was the same person as the general manager of SOMIP during 1968, has made the financial position of SOMIP precarious. On January 1, 1969 the capital and accrued interest amounted to CFAF 299 million, of which CFAF 44 million was to be paid off annually. A year later a new agreement was entered into with CAFL, under which that company was to put SOMIP on its feet, and a new repayment schedule was worked out for the long-term debt, which now amounted to CFAF 343.2 million. The first payment of CFAF 59.2 million is due to be made on July 1, 1970; thereafter decreasing amounts will be paid until July 1, 1978.

6. To enable SOMIP to pay off its debts, on January 1, 1970 the company was placed in the hands of Mr. Ostrowski, who has formed COMAPIC, a firm of whose capital 10 percent has been put up by SOMIP. Raw materials are to be supplied by a Dutch fishing enterprise which has 10 vessels, each of 22 meters overall, with a crew of nine men each, and a capacity of between 120 and 130 tons of fish. COMAPIC has undertaken to purchase all the fish landed by this firm at a price of CFAF 4 per kg. The vessels were brought into service at the end of January 1970.

7. The contract is to run for five years. Mr. Ostrowski is to run the operation at his own expense. Hence, he will have to bear the costs of running the plant and maintaining the equipment, and he will be subject to any taxation arising from the operation. He may, however, apply for Priority Industry status for tax purposes. If the output of fishmeal does not reach 15,000 tons per year from 1971 onwards, SOMIP may terminate the arrangement.

8. COMAPIC is to pay SOMIP 9 percent on the f.o.b. value of the annual sales of fishmeal and 10 percent on the f.o.b. price of the sales of oil. COMAPIC has undertaken to sell the whole of the output. The late start of operations will make it virtually impossible to reach an output of 15,000 tons in 1970. Nevertheless, it is hoped that at least 40,000 tons of raw materials will be received at the plant during the year.

If this figure is in fact reached, the earnings could be as under:

8,000 tons of fishmeal	at CFAF 40,000 per ton =	CFAF 320 million
2,000 tons of oil	at CFAF 70,000 per ton =	CFAF 140 million
		CFAF 460 million

From 1971 onward it is expected that output will amount to 15,000 tons of fishmeal and 4,000 tons of oil, which would give a turnover of CFAF 862 million. Earnings of that order of magnitude would yield some CFAF 90 million for SOMIP, an amount about equal to the annual depreciation on the plant, but smaller than the annual payments to be made by the Corporation. If the minimum production figure is exceeded, which is quite possible, seeing that to produce 15,000 tons of fishmeal per year the plant will only need to work at half capacity for 250 days per year, the royalties paid by COMAPIC will increase proportionately.

ANNEX 5

PORT DUES AND OTHER CHARGES

1. The dues charged in the port of Nouadhibou are as follows:

Number	Nomenclature	Rate in CFAF
	CHAPTER 1 - GENERAL CHARGES	
	1. BERTHING CHARGES	
	ALONGSIDE	
1 - 1	- Vessels of 5-20 tons, per day (one day free)	300
1 - 2	- Vessels of 20-150 tons, per day (one day free)	1,000
1 - 3	- Vessels of 150-1,000 tons, per day (day of arrival counting as first day)	2,000
1 - 4	- Vessels of over 1,000 tons, per day (day of arrival counting as first day)	4,000
	ANCHORED OFF	
1 - 5	- Vessels of 5-150 tons, per day (30 days free)	150
1 - 6	- Vessels of over 150 tons for fishing or pleasure, per day (30 days free)	500
1 - 7	- Vessels of over 150 tons other than those mentioned in 1-6, per day (one day free)	1,000
	2. TAX ON LOADING OR UNLOADING BULK HYDROCARBONS	
	- Per ton loaded or unloaded in bulk, into or out of land-based tanks or permanently moored tankers	50
	3. TAX ON LOADING OR UNLOADING GENERAL CARGO	
	- Per metric ton	150
	CHAPTER 2 - USER CHARGES	
	4. DEMURRAGE CHARGES ON THE WHARF, THE PONTOON AND THE QUAYS	
	- Per sq. meter per day (24 hours free)	10

5. CHARGES FOR USE OF 250-TON SLIP

5 - 1	- Lifting out of water, and returning to water	10,000
	Surcharge for operations carried out between noon and 2 p.m.	10%
	Surcharge for operations carried out between 9 p.m. and 8 a.m., and on Sundays and holidays	50%
5 - 2	- First 24 hours, per gross ton	200
5 - 3	- Per day, for the second day	5,000
5 - 4	- Per day, for all days after the second day	7,500

6. CHARGES FOR CHARTERING FLOATING EQUIPMENT OWNED BY THE PORT

	- To charter a 50 h.p. launch with crew and accessories, from leaving berth to returning to berth	
	- Per hour	2,000
	- Per 8-hour day	12,000
	- Each hour beyond eight, with a maximum of four additional hours	2,200
	- Between 9 p.m. and 8 a.m., and Sundays and public holidays	Surcharge of 5 percent

7. MOORING AND TYING-UP CHARGES

7 - 1	- Operations including tying up to bollards	15,000
7 - 2	- Operations excluding tying up to bollards	5,000

2. In comparison with Las Palmas and Dakar, the charges are high. At Dakar the berthing charges are as under:

		ALONGSIDE	ANCHORED OFF
Fishing vessels	100 net tons	CFAF 2,000 per month	-
	100-150 net tons	CFAF 5,000 per month	-
	over 150 net tons	CFAF 1.27 per ton net	0.64

At Las Palmas the relevant charges are:

Fishing vessels	5-20 tons	CFAF 120	40 per day
	20-150 tons	120-360	40-120 per day
	150-1,000 tons	360-800	120-240 per day
	over 1,000 tons	800-1,000	240-320 per day

A new scale of charges is being considered.

3. Brief comments on the arrangements to supply fuel oil, electricity, water and ice are not out of place, as these arrangements are among the factors that will determine the future of fishing at Nouadhibou.

a) Fuel oil

Fuel oil is sold to the operators of fishing vessels at CFAF 9 per liter tax free. The price has been reduced by CFAF 2 per liter since 1966. It should be possible to make a further reduction in price when the oil companies put in a proper distribution system on the fishing quay, and when all the vessels fishing in the area take on fuel at Nouadhibou, as a general practice. At present MIFERMA consumes 68,500 cu. meters of fuel oil per year. If the number of fishing vessels using Nouadhibou were to double to about 400, an additional 50,000 cu. meters of fuel oil would be needed.

b) Electricity

Electricity is sold at a number of different rates, depending on the type of consumer and the amount consumed. The rates vary from CFAF 34.5 per kw of power (CFAF 35.8 in 1966) for domestic purposes to CFAF 11 (CFAF 13 in 1966) for industrial purposes, with a minimum consumption of 550 kw plus CFAF 5,000 per kw of installed capacity.

c) Water

Until 1953 Nouadhibou received its water supplies in tankers from Bordeaux or Dakar. From 1953 to 1961 the town received its water from a small salt water distillation plant with a capacity of 115 cu. meters per day, at a cost of CFAF 1200 per cu. meter. In 1961 MIFERMA was established, and this made it possible to bring water by rail tank car from the natural underground supply at Baulanouar 50 miles away in the desert at the rate of 400 cu. meters per day; the volume was increased to 650 cu. meters per day in 1963. Since then, the European Development Fund has financed a water pipeline from Baulanouar to Nouadhibou, and a water tower for the town. The result has been to reduce the cost of water for industrial purposes in Nouadhibou to CFAF 170 per cu. meter.

The installation of a water system for the town is now being undertaken with funds provided by the CCCE. However, as the cost of this work is turning out to be higher than estimated, it is to be feared that the main to the fishing port will be deleted from the plans. This would be regrettable, as it would handicap ship handlers, who might otherwise be competitive so far as water is concerned.

ANNEX 6

QUANTITY AND VALUE OF FISH DELIVERED TO DRYING AND FREEZING PLANTS

A. For Drying

1. Two sets of statistics are available for fish drying plants, one relating to the quantities of green fish delivered, the other to the quantities processed and exported. There is virtually no relationship between the two sets of figures, first because of the time required for processing, second, because of the variation in the degree of moisture loss in the green fish, which will have been in salt for periods varying between 3 days and 10 days, depending on the year and the composition of the catch.

2. The figures for green fish deliveries are only useful for obtaining some idea of the average price of fresh fruit. A factor of 1.6 is applied to the weight of green fish delivered as a means of finding the fresh weight equivalent.

Year	Weight of green fish (tons)	Total value CFAF millions	Average price of green fish per kg. CFAF	Equivalent fresh weight (tons)	Average price per kg. CFAF
1960	5,122	127	24.89	8,195	15.50
1961	7,126	169	23.66	11,400	14.80
1962	3,829	95	24.88	6,130	15.50
1963	6,164	170	27.51	9,860	17.25
1964	7,239	231	31.86	11,580	19.90
1965	8,088	271	33.50	12,940	20.95
1966	9,143	280	30.60	14,630	19.15
1967	8,254	290	35.14	13,210	21.95
1968	22,827	836	36.63	36,520	22.90
1969	10,956	416	38.00	17,530	23.75

3. The figures for 1969 include 300 tons fresh weight equivalent of dried or semi-dried fish, sometimes salted by the Imraguen of Timiris and always salted by the Imraguen of Nouadhibou. The equivalent figure in 1964 was 400 tons.

4. According to the information available, the price paid to the Imraguen of Timiris for the salt semi-dried fish was about CFAF 26 per kg. or CFAF 16 per kg. of fresh weight equivalent; in other words the price was well below the standard figure of CFAF 23.75 per kg. for other deliveries to the drying plants used by us in estimating the value of output. The Imraguen and other Mauritanian inhabitants of Nouadhibou receive the same prices as the Canary Islanders.

5. The price for salt green fish (average between 3 days' salt and 10 days' salt) has moved as follows during the past decade:

CHANGES IN THE PRICE OF SALT GREEN FISH

CFAF per kg.

	1960	1962	1964	1966	1968	1969	1970
Meagre	34.10	32.05	43.05	42.00	44.00	46.20	56.0
Miscellaneous (Baccalao)	19.45	22.00	32.00	27.00	28.00	32.00	34.0
Mullet	17.12	16.00	19.00	16.00	17.00	18.40	19.0
Shark	14.10	14.00	19.00	12.00	21.00	21.00	21.0
Average price	24.89	24.88	31.86	30.60	36.63	38.00	32.2

B. For Freezing

6. The first frozen fish in Mauritania was produced in 1964 on an Italian freezer ship lying in the Baie du Levrier. The experiment did not last very long. Deliveries of fresh fish to land-based freezing plants have increased rapidly since 1966, when the first one opened. In the early days, the main suppliers of the plants at Nouadhibou were French trawlers and the SOMAP vessels, but since the collapse of SOMAP the main suppliers have been Spanish. Deliveries have moved as set out below:

DELIVERIES OF FISH TO FREEZING PLANTS

BY SOURCE

Tons

	1964	1966	1967	1968	1969
Small vessels	-	-	-	-	100
SOMAP	-	122	1,434	2,030	-
French trawlers	-	2,000	1,800	-	1,500
Spanish trawlers	-	-	2,266	3,230	6,800
Not specified	2,100	1,208	-	-	-
Total	2,100	3,330	5,500	5,260	8,400

ANNEX 7

OUTPUT OF SALT DRIED FISH AT NOUADHIBOU

Tons

Years	Total Output	Meagre	Mullet	Shark	Miscellaneous
1953	1,667	-	-	-	-
1957	3,277	-	-	-	-
1960	3,150	-	-	-	-
1961	3,450	-	-	-	-
1962	2,330	940	268	125	997
1963	3,359	1,179	526	123	1,531
1964	3,441	1,656	423	209	1,153
1965	4,542	2,555	309	160	1,518
1966	4,920	2,300	770	150	1,700
1967	5,065	2,800	640	190	1,435
1968	6,200	3,820	725	235	1,420
1969	5,700	3,320	355	530	1,495

The export value of salt dried fish is not published, as customs duties are levied on the sale price. Nevertheless, the average price f.o.b. is known, and is shown below for the period since 1962.

AVERAGE EXPORT PRICE F.O.B. FOR SALT DRIED FISH

Year	Average price Total	Meagre	Mullet	Shark	Miscellaneous
1962	83.00	104	67	61	71
1963	82.30	106	64	61	72
1964	84.70	105	60	60	75
1965	99.10	110	70	67	90
1966	97.50	120	66	68	84
1967	102.50	121.5	68.5	61.5	85
1968	105.80	121.5	71	70	87
1969	114.	133.5	77	74	94
1970	-	143.5	77	75	101

To obtain the ex-factory price, subtract CFAF 15 per kg. from the f.o.b. price to cover bagging, transportation, lighterage, and taxes.

The value of the output for various years has been calculated on the basis of the average price f.o.b. The results are given below:

VALUE OF OUTPUT

CFAF thousands

Years	Total Value	Meagre	Miscellaneous (Baccalao)	Mullet	Shark
1962	183,324	97,760	70,787	17,152	7,665
1964	298,275	173,880	86,475	25,380	12,540
1966	479,820	276,000	142,800	50,820	10,200
1967	519,135	340,200	123,410	43,840	11,685
1968	655,595	464,130	133,540	51,475	16,450
1969	650,305	443,220	140,530	27,335	39,220

ANNEX 8

EXPORTS OF FISH PRODUCTS

Years	Salt dried fish		Frozen fish		Bottargo		Dried Roe		Lobsters	
	Tons	CFAF millions	Tons	CFAF millions	Tons	CFAF millions	Tons	CFAF millions	Tons	CFAF millions
1956	2,576		-		-		-		-	
1957	3,277		-		-		-		-	
1958	3,091		-		-		-		-	
1959	2,820		-		-		-		-	
1960	3,150	n.a.	-		-		-		-	
1961	3,450	267	-		-		-		-	
1962	2,330	217.4	-		3.7	2.4	-		-	
1963	3,359	278.9	-		2.0	1.8	-		3	
1964	3,441	322.5	1,344	96	5.9	6.6	-		24	19
1965	4,542	434	1,395	110	10.5	14	-		49	37
1966	5,133	n.a.	3,470	251	8.7	6.2	-		84	67
1967	5,093	473	5,825	418	11	12	-		104	83
1968	5,640	549	5,259	391	12.8	14.2	-		37	31
1969	5,921	670	6,292	453	20.1	20.9	14.2	8.5	59	68

PRINCIPAL DESTINATIONS FOR SALT DRIED FISH

Tons

	1962	1963	1964	1965	1966	1967	1968	1969
Congo-Brazzaville	1,709	2,645	2,668	3,427	3,724	3,333	4,043	4,275
Congo-Kinshasa	-	191	563	791	940	447	1,253	514
Gabon	483	417	109	205	337	561	154	208
Ghana	138	104	101	129	102	45	92	247
Spain	-	-	-	-	-	707	141	377
Italy	-	-	-	-	-	-	-	230
Total	2,330	3,357	3,441	4,542	5,103	5,093	5,683	5,851 1/

1/ salt dried fish of Imraguens excluded (-70 T)

ANNEX 9

FISHING PERMITS GRANTED, VOLUME OF FISH CAUGHT AND VOLUME LANDED AT NOUADHIBOU

ESTIMATES FOR 1970 AND 1973

Nationality	Permits issued 1970	Permits issued 1973	1970 Volume caught Tons	1970 Volume landed at Nouadhibou Tons	1973 2/ Volume caught Tons	1973 2/ Volume landed at Nouadhibou Tons
Spanish						
- Miscellaneous	171	171	42,500	34,500	42,500	34,500
- IMAPEC	28	38	28,000	28,000	67,900	67,900
Greek	29	29	11,000	-	11,000	-
Italian	21	21	10,000	-	10,000	-
Panamanian	34	34	16,000	-	16,000	-
Japanese	30	30	36,000	-	36,000	-
Dutch	10	15	40,000	40,000	75,000	75,000
Total	323 1/	338 1/	183,500	102,500	258,400	177,400

1/ Excluding between five and seven French vessels and 15-20 local decked fishing craft which do not need permits to fish in territorial waters.

2/ If all agreements are renewed. There is some doubt about the agreement with the Japanese.

ANNEX 10

PRODUCTION CAPACITY OF FISH PROCESSING PLANTS
AT
NOUADHIBOU AND LA GUERRA

Assuming 250 days' operations per year

Tons, fresh weight equivalent

	1970	1973 (estimated)
Frozen fish		
SURVIF	15,000	15 - 21,000[1/]
SOFRIMA (EDF plant)	10,000	17.5 - 27,500[1/]
SOMAUPECO	8,000	8,000
IMAPEC	15,000	15 - 21,000[1/]
Total	48,000	55.5 - 77,500[1/]
Canned Tuna	-	4,900
Salt dried fish		
SIGP	15,000	15,000
EGA	15,000	15,000
IMAPEC	18,000	18,000
Total	48,000	48,000
Fishmeal and fish oil		
LA GUERRA	10,000	10,000
SOMIP	150,000	150,000
IMAPEC	62,500	62,500
Total	222,500	222,500
Total	318,500	331 - 352,900[1/]
Assuming 300 days' operations per year	n.a.	388 - 413,900[1/]

1/ Depending on the method of production; i.e., on how much fillet is produced (0%-20%)

ANNEX 11

VOLUME OF FINISHED PRODUCTS AVAILABLE FOR EXPORT

IN 1973

Thousand tons

	Fresh weight equivalent	Actual Weight
Frozen fish	56 - 78	56
Tuna	5	3.5
Salt dried fish	48	16
of which, shipped by small traders to local markets and coastal trade	(9)	(3)
Fishmeal)	222	44.4
Fish oil[1/])		3.1
Total		123
of which, exported by the commercial wharf		120
shipped by small traders		3

1/ IMAPEC alone